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LITHUANIA AUGUST HARVESTING, WINTER SOWING PREPARATIONS

Careful Harvesting

Vilnius SOVETSKAYA LITVA in Russian 18 Aug 82 p 1

[Text] The farms of the republic have already harvested more than half of the spike crops. But in recent days the rates of work have decreased somewhat on certain farms. During the past four days in Tauragskiy, Shal'chininkskiy , Trakayskiy and Shilutskiy rayons they have mowed only 8-10 percent of the grain, even though in the majority of the rayons the soil is almost dry and rain does not impede the work of the combine operators very much. Therefore the rates at which the crop is harvested should not decrease.

Working conditions deteriorate each day. Therefore the harvest must be accelerated and the quality of work must be high. But on certain farms, because of organizational deficiencies and inefficient repair work, grain combines and other technical equipment stands idle for a good deal of time. More attention should be devoted to the productivity of the combines in Ionavskiy, Kayshyadorskiy, Moletskiy, Trakayskiy and Tauragskiy rayons. The proper attention is not being devoted to the quality of work everywhere on the farms of Kupishkskiy, Moletskiy and Pakruoyskiy rayons. It is very important to harvest the crop from the seed sections as quickly as possible and to store up the necessary supplies of seeds of winter and spring crops, and immediately to begin the preparation of seeds of winter crops and the testing of their quality. This work cannot be postponed on the farms of Birzhayskiy, Kel'meskiy and Shvenchenskiy rayons.

This year it is possible to obtain ripe seeds of pulse crops and mixtures of them. It is necessary to attentively keep track of the ripening of the crops planted on these areas and, if necessary, to defoliate them and cultivate the crop properly.

All the spike crops that are harvested must be used only for the purpose for which they are intended. Some of the grain planted for green fodder and silage should be allowed to ripen.

And in the future the only way to harvest the crops is comprehensively. But in some places they are inadmissably late in processing the straw. This pertains primarily to many farms of Shvenchenskiy, Akmyanskiy, Kayshyadorskiy, Pasval'skiy, Rokishkskiy and Kedaynskiy rayons. When straw is taken away all of its residuals should be gathered up and in no case should they be burned.

It is also necessary to accelerate the plowing of fallow and to make sure that this work is of high quality. When the weather is good the pulling of flax should be accelerated. It is also very important not to pay less attention to feed production in the future.

Many farms have seeds of winter rape and turnips. These crops should be planted in the next few days. It is possible to provide all farms with seeds of these crops.

Planting Winter Crops

Vilnius SOVETSKAYA LITVA in Russian 20 Aug 82 p 1

[Text] The Food Program emphasizes the need to obtain large yields of winter crops, especially rye. This pertains to our republic as well. How are preparations for planting winter crops proceeding? The deputy minister of agriculture, B. Pauzha, answers this question for our EL'TA correspondent.

Under our conditions winter crops produce better yields during any year than spring crops do. Thus under the past five-year plan we threshed an average of 2.2 quintals per hectare more than we did of grain crops. Since rye and wheat occupy 40 percent of all the area planted in grain, just because of the addition of these quintals per hectare we added 80,000-100,000 tons of food grain to the country's supply.

This year about 40 percent of the winter crops will be planted after perennial grasses. This is a good predecessor, but it is necessary to make sure that the soil is prepared on time. However this work is being unjustifiably delayed on the farms of Kupishkskiy, Moletskiy, Arasayskiy and several other rayons. The clover fields that have been selected as predecessors for winter crops and have still not been cultivated should be immediately plowed, cleared of rocks and bushes, and the system of the surface water flow should be put into order. This soil should be well fertilized with manure. Unfortunately, the proper amount of attention is not being devoted to this everywhere. This pertains especially to the farms of Vil'nyusskiy, Shal'cininkskiy and Svenchenskiy rayons, and also many farms of the rayons of the Zhemaytiyskaya zone. About 14 percent of the winter crops still have to be planted after winter and spring grain crops, flax and other crops that were harvested late. On these areas it is important to harvest the crop as early as possible, to gather the straw quickly and immediately to replow the soil to the complete depth with plows and skimcoulters. After plowing one must carefully level the furrows, and as soon as weeds appear the soil should be well cultivated.

Before the beginning of planting winter crops one should prepare the seeds and decontaminate them. It is very important to observe the norms for planting seeds--170-190 kilograms of full-value seeds. Areas planted with this density withstand the winter better. Planting times are also very important. Winter crops that are planted too early grow too much and during changeable weather they begin stem extension. Such planted areas die out or do not withstand the winter as well. It is recommended that winter crops be planted earlier in lower places. In any case winter crops should not be planted on poorly prepared soil.

One of the most important tasks for agronomists, other specialists and machine operators of the farms is high-quality work. This pertains both to preparation of the soil and to the planting itself.

Winter Crops

Vilnius SOVETSKAYA LITVA in Russian 27 Aug 82 p 1

[Article by A. Simaytis, chief of the farming administration of the Lithuanian SSR Ministry of Agriculture, and V. Barbashin: "The Republic's Winter Fields"]

[Text] As soon as the combines and straw gathering machines leave the field the tractors appear: they scuffle the stubble and plow the soil. In a word, all field work is now interwoven into a single closely knit operation which requires unwavering attention. But such is the peculiarity of farming work. While gathering this year's grain one is concerned about next year's harvest. The time for planting winter crops has come. Under our republic's conditions the best time for this is the first half of September.

This autumn the area planted in winter crops will be larger and will occupy more than 500,000 hectares, which is 40 percent of the area planted in grain crops. And this is predictable. After all, winter rye and wheat produce larger yields than do other grain crops under our conditions. For instance, under the Tenth Five-Year Plan we obtained an average of 25.1 quintals of grain per hectare planted in winter crops and 22.9 quintals per hectare planted in spring crops. Moreover winter crops are the most valuable food crops. Therefore the farms' desire to expand the areas planted in winter crops should be approved of and supported in all ways.

Soon the seeders will go out into the fields and planting will begin. How have the farms prepared for this important campaign? Good news about complete preparations of planting is coming in from many kolkhozes and sovkhozes of the republic. Real concern about this has been shown by the Kepalyay and Baryunary kolkhozes in Ionishskiy Rayon, the Draugas Kolkhoz in Radvilishkskiy Rayon, the Istra Kolkhoz in Pasval'skiy Rayon and many others. These farms have selected soil with good predecessors for winter crops, they have stored up first-class seeds and the necessary quantity of fertilizers, and they have drawn up schedules for planting that envision the optimal times. This kind of attention to the winter fields is repaid with rich yields. In recent years a whole number of farms are obtaining 50-55 quintals of rye and wheat from each hectare.

Kolkhoz workers are well aware that the quality of the planting material depends largely on the wintering and the yield of winter crops. Therefore correct actions are being taken by the farms of Kaunasskiy, Vilkavishskiy and other rayons which are extensively utilizing seeds of grain from last year. It has ripened well, been brought up to the first class, and the germination is high. Unfortunately, a number of farms have not preserved seeds like this. And since it is necessary to plant grain from this year's harvest, the freshly harvested seeds should be treated with heat and air and dried in floor dryers with active ventilation. Their moisture content should not exceed 16-17 percent. Practice shows that under the republic's conditions one should plant more rye of the Kustro strain and, for green fodder, the Letuvos-3 strain, as well as Mironovskaya-808 and Starka-II wheat.

Not all of the kolkhozes and sovkhozes have approached the selection of predecessors seriously. For example, in Vil'nyusskiy, Shal'cininkskiy, Moletskiy, Ignalinskiy and other rayons 25 percent of the planted areas are to have poor predecessors --late spring grain crops.

The role played by predecessors in increasing productivity is shown by the following examples. Research that has been conducted shows that when rye has been planted after barley its yield was 15 quintals less than after good predecessors, and after wheat--22 quintals. This is why it is necessary for the managers and specialists of farms to find possibilities of selecting the best predecessors. At Trakayskiy, Zarasauskiy, Shvenchenskiy and Moletskiy rayons they must pull themselves together when it comes to preparing the soil for planting.

Calculations show that when granulated fertilizers are applied along with planting the seeds in the rows the productivity is increased by approximately 25 percent. Such an additional yield is worth fighting for! This year ammonia water should be used more extensively. The farmers recall the numerous concerns and ordeals brought about this spring by the appearance of mold on the winter crops. In order to avoid this phenomenon in the future it is necessary to decontaminate the seeds well in the autumn before planting, using a fundasol mixture for this. Simazine is an excellent means of fighting against matricary, that harmful weed in the planted areas. These preparations are available; the only problem is that they are not always well applied in the local areas. Deviations from the requirements of agrotechnology lead to shortages in the harvest. This cannot be allowed at any time.

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INCREASING PRODUCTIVITY OF FEED LANDS DISCUSSED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 6, Jun 82 pp 2-4

/Article by M. Smurygin, Corresponding Member of VASKhNIL and director of the All-Union Scientific Research Institute of Feed imeni V.R. Vil'yams: "Raising the Productivity of Feed Lands"/

/Text/ During the years of the 10th Five-Year Plan, growth was achieved in the production of livestock products in Russia mainly owing to the increased production of feed. However the feed requirements are still not being satisfied completely. Many farms have increased the consumption of concentrates in the rations by more than twofold, while the production of hay, silage and haylage has increased slowly. The quality of the feed still remains low. In 1981, one sixth of the hay and silage and almost one third of the haylage procured were of sub-standard quality. Their nutritional value declined by a factor of from 1.5 to 2.

The present five-year plan calls for feed production to be increased by 15 percent and to reach 81.8 million tons of feed units. By 1985, 42 million tons of hay, 150 million tons of silage and 42.5 tons of haylage must be procured in the RSFSR. The carrying out of this complicated task will depend to a considerable degree upon the farms making better use of their land and raising the fertility of their soil. A leading role will be played by field feed production, which furnishes up to 70 percent of all feed being procured.

At the present time, perennial grasses occupy 36 percent of the sowing areas, silage crops -- 34 and annual grasses -- 27. The plans call for the perennial grass areas to be increased to 14 million hectares by 1985. In the nonchernozem zone the plans call for the growing of mainly valuable leguminous perennial grasses -- clover and alfalfa and highly productive cereal grasses. In rayons in the central chernozem zone, the southern Volga region and the north Caucasus, an expansion must take place in the areas used for alfalfa, in the arid southeastern rayons -- yellow alfalfa and wheat grass and on solonetz complexes -- in the areas used for sweetclover and wheat grass mixtures.

Accordingly, greater quantities of mineral fertilizer must be applied. An average of no less than 40-60 kilograms of phosphorus and 60-80 kilograms of potassium should be applied per hectare of leguminous grasses. For intensive cereal grasses -- up to 180-240 kilograms of nitrogen.

It is known that perennial grasses, in addition to possessing great feed qualities, also serve to raise considerably the fertility of soil and to increase the humus

content. In the case of high yields, they leave more than 100 quintals of organic bulk per hectare in the form of root and crop residues. Moreover, perennial grasses can be used in a variety of ways: as green feed and as the best raw material for haylage, hay, grass meal, clippings, granules and briquettes. They are also used in the preparation of silage.

Unfortunately, the cropping power of perennial grasses is still quite low in a number of oblasts throughout the republic. In order to raise it, a more decisive conversion must be made over to multi-cutting use (2-3 cuttings in the absence of irrigation and 3-4 cuttings with irrigation). With the observance of scientifically sound procurement technologies, this will provide a 30 percent increase in forage.

For example, at our institute's OPKh /experimental model farm/, of which there are several located in four of the republic's oblasts, 2-3 cuttings over the past 3 years have produced an average of 450 quintals of red clover fodder per hectare and 500 quintals of cereal grasses per hectare.

The areas used for annual grasses should be retained, with their productivity being raised by sowing the cereal crops in a mixture with leguminous grasses.

In the nonchernozem zone, a mixture of vetch and oats, in terms of fodder yield, surpasses a pure sowing of oats by 28 percent and in terms of protein yield -- by 70 percent. Triple component mixtures consisting of two leguminous and one cereal crop appear to be very promising. In the Volga region and the southern Urals the sowings of Sudan grass and sorghum-Sudan hybrids should be expanded in all areas, since in these areas they are more productive than other annual grasses by 30-40 percent.

As is known, corn is the principal silage crop in the republic. Unfortunately, its productivity still does not exceed 140-150 quintals of fodder per hectare. In order to increase the production of silage and increase its nutritional value, a conversion must be made over to growing early ripening varieties and hybrids of corn in the northern regions and mid-season ripening -- in the southern regions. This will make it possible to obtain for ensiling purposes corn having ears of milky-waxy and waxy ripeness.

According to data supplied by scientific institutes, the nutrient yield obtained from a corn crop in the waxy ripeness grain stage exceeds by almost twofold the nutrient yield from a corn harvest when the ears are in the milky ripeness stage. Thus an early sowing of early-ripening and mid-season ripening varieties and hybrids and the harvesting of the crop when the grain has reached milky-waxy and waxy ripeness are making it possible in many oblasts to increase the nutrient yield from the crops by 20-30 percent.

In the arid regions, for example in the north Caucasus, where less than 400 millimeters of precipitation fall annually, a portion of the corn sowings should ideally be replaced by sorghum. Under such conditions, sorghum produces 30-35 percent more nutrients. Sorghum is a drought resistant crop and one which produces high yields even on saline soils.

The natural-climatic conditions of a majority of the regions of the RSFSR are favorable for the cultivation of intermediate crops, which can furnish 2-3 yields. Sufficient use is still not being made of this reserve. Meanwhile, in the central

and northwestern regions, such sowings, in combination with the principal one, are making it possible to obtain 10,000-13,000 feed units and 12-17 quintals of protein per hectare and on irrigated lands in the Volga region and the north Caucasus -- 18,000-20,000 feed units and 22 quintals of protein respectively.

If the areas of intermediate sowings are increased twofold (and this is fully realistic!), it will be possible to produce additionally up to 20-50 percent of the green and succulent feed being procured from arable land.

In connection with raising the productivity of fields, an important role is played by organization of the feed area and, in particular, by specialized feed crop rotation plans. In each natural-climatic zone, they make it possible to create optimum conditions for the cultivation of crops and for obtaining more feed from a smaller area.

Studies and leading practice testify to the fact that the most promising grass crop rotation plans contain a saturation of up to 70-80 percent perennial grasses for the production of green, briquetted and granulated feed, haylage and hay. Such crop rotation plans are most effective in regions of adequate moisture (northwest and central oblasts of the RSFSR). Their productivity ranges up to 6,000-8,000 feed units per hectare of arable land and under irrigation -- 9,000-10,000.

Farm feed crop rotation plans appear to be very promising for the production of succulent feeds through the cultivation of silage crops and food roots. Crop rotations involving corn and alfalfa must be mastered in those zones where these crops are sown. In the forest-steppe and steppe zones they can furnish up to 12,000-14,000 feed units per hectare.

Grain-grass crop rotation plans, saturated up to 60-70 percent with grain crops have proven their worth in the production of concentrated feeds.

There is still one large reserve for the intensification of feed production -- natural feed lands. They occupy 38.7 percent of all of the republic's agricultural lands. However, these large areas have been grossly neglected. Swamps, hillocks, low underbrush -- this is how they usually appear. Equipment cannot be employed here and thus only 5-10 quintals of hay or 30-40 quintals of fooder are obtained per hectare. In the republic's feed balance, the proportion of natural meadows amounts to only 35 percent of all of the feed being obtained.

Improvements must be carried out in this land if its productivity is to be raised. Unfortunately, as yet improvements have been carried out on only 8.2 percent of the natural lands in Russia and their cropping power continues to remain low and amounts to roughly 12 quintals of hay per hectare. In particular, this is explained by the fact that insufficient fertilizer is being applied and the liming of acid soils is being carried out in a poor manner.

According to our computations, 600-800 rubles spent per hectare of overgrown land are repaid within 4-5 years providing not less than 40 quintals of feed units are obtained from it annually. In the case of 1,600-3,000 rubles worth of improvements being carried out on a hectare of irrigated land, repayment will be completed 8-12 years later providing not less than 70-80 quintals of feed units are obtained from it annually. But this requires regular applications of up to 15-20 quintals of standard mineral fertilizer. Meanwhile, it bears mentioning

that at the present time on natural meadows, both improved and unimproved, one of the principal laws of farming is being violated -- the law of return. For example, for the Russian Federation as a whole, five times more nitrogen, 6.5 times more phosphorus and 7.3 times more potassium were withdrawn during 1979 with a crop of hay and pasture feed than was applied in the form of fertilizers. Under such a situation, one can hardly expect to achieve success.

According to our observations carried out over a period of many years, the natural productivity of a dry valley meadow in the nonchernozem zone does not exceed 16 quintals of hay per hectare. But if 120-180 kilograms of nitrogen, 30 kilograms of phosphorus and 60 kilograms of potassium are applied annually, then over a period of 3 decades the haying lands will produce an average of 64-72 quintals of hay.

It is known that acid soils require liming, which improves the botanical composition of the feed and its complete utilization by the animals. It is obvious that this method must become mandatory when improving meadows.

There are also other factors which are hindering the conversion of natural feed lands into highly productive haying and pasture lands. As yet, only 60 percent of the republic's meadows have been inspected and in a number of central oblasts (Moscow, Yaroslavl' and others), where they occupy large areas, such inspections have generally not even commenced. Thus the reclamation of land is often being carried out in a blind manner. A requirement exists at the present time for carrying out all-round work in connection with a geo-botanical, soil and soil improvement inspection of the republic's natural feed lands.

Everyone is aware that irrigation serves to raise the yields of forage crops by a factor of 4-5 and to lower production costs by 20-25 percent. The irrigation of pastures guarantees stable forage crop yields. It has been established, for example, that the irrigation of sown cereal grass haying and pasture lands becomes economically justified when no less than 240 kilograms of nitrogen fertilizer are applied per hectare. Here the cropping power reaches 10,000-12,000 feed units and the capital expenditures are repaid within 3-5 years.

The use of correct agrotechnical methods produces its own results. A number of farms throughout the republic, for example the sovkhozes Krasnoye Znamya in Taldomskiy Rayon and Budennovets in Dmitrovskiy Rayon and the Krasnaya Poyma OPKh /Experimental Model Farm/ in Lukhovitskiy Rayon in Moscow Oblast are obtaining stable yields of 60-70 quintals of hay or 350-400 quintals of fodder per hectare of natural meadow.

There cannot be good yields in the absence of good seed. All of the farms must be supplied with and use high quality regionalized seed for their forage crops and particularly for their perennial grasses. Unfortunately, the plans for the development of grass cultivation are not being reinforced by growth in the production of seed. The unsatisfactory organization of high quality seed production for perennial grasses results in an annual shortfall of 10-12 million tons of fodder.

The yield, as is well known, is dependent upon the variety employed. Experience has shown that the use of highly productive varieties makes it possible to increase the feed yield per hectare by 20-30 percent and to improve its quality sharply.

When the proper agricultural techniques are employed, VIK7 red clover, Severnaya Gibridnaya and Marusinskaya alfalfa, Morshanskiy 760 awnless brome grass and VIK61 cock's foot produce hay yields of up to 100 quintals per hectare and with irrigation -- 140-160. However, high quality sowings of such a valuable forage crop such as red clover in Russia constitute only 45-50 percent of the total amount of sowings. The principal reason -- a shortage of seed.

A large portion of the feed losses, which at times amounts to one half of the crop, is associated with untimely harvesting. For example, the optimum period for harvesting perennial grasses is during the budding phase for cereal grasses and the shooting phase for cereal grasses. During this period the grasses contain up to 1 feed unit and up to 147 grams of digestible protein in a kilogram of dry substance. When the harvesting work is carried out during the blossoming phase, up to 27 percent of the nutrients and 30-45 percent of the protein are lost. This is not a new revelation. However, statistical data indicates that the harvesting operations are being carried out on an untimely basis on more than 40 percent of the republic's natural and improved haying lands. Instead of 7-12 days, this work is being dragged out for a month or more. This explains the overall shortfall in forage, which amounts to 24 million tons of feed units.

Losses are also caused by violations of the technologies recommended for use by science. During the 1976-1980 period, for example, more than 85 percent of the hay was procured on the basis of an old technology, in loose and non-milled form. Here the nutrient losses frequently reached 35 percent. Yet progressive hay procurement methods have been developed for some time now -- pressing and drying out by means of forced ventilation.

Science has shown that the ensiling of very damp fodder is most effective when chemical preservatives are added to it. They reduce losses by a factor of 2-3. The VIK 1 and VIK 2 preparations developed at the Institute of Feeds practically guarantee complete (by 97-98 percent) preservation of the crop as grown, including sugar -- by 95 percent. However, this extremely effective technology is being introduced into operations slowly, mainly owing to a shortage of preservatives.

Last year, 129 million tons of haylage and silage were procured at kolkhozes and sovkhozes throughout the republic, of which amount 75 million tons were placed in storehouses. The remainder was stored in earthen trenches and ground clamps.

Storehouses must be built in all areas at a rapid rate. Unless this is done, the procurement of high quality feed and the preservation of forage without losses are unthinkable.

The principal types of feed in livestock production, as is well known, have been and continue to be hay, haylage and silage. If they are of high quality, then they can be interchanged in the rations. In the process, no reduction takes place in the productivity of the livestock. But -- I repeat -- this is the case only if the forage is of high quality, that is, if the amount of dry substance in the hay reaches 82-83 percent, in the haylage -- 40-60 and in the silage -- 30-35 percent. If the bulk is well preserved, the nutrient losses during storage will be minimal.

The feed procurement work will be influenced by the weather conditions. In good weather the perennial grasses will be used for preparing hay and haylage and

during inclement weather -- silage. Such a maneuver will make it possible to raise the quality of the feed.

The tasks confronting the agricultural workers of Russia, with regard to increasing the production of meat, milk and other livestock products, are complicated and important. The further development of feed production and its conversion over to an industrial basis will make it possible to achieve improvements in this specialized branch.

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LIVESTOCK FEED PROCUREMENT

DEFICIENCES IN LATVIAN FEED HARVEST NOTED

Moscow SEL'SKAYA ZHIZN' in Russian 19 Aug 82 p 2

[Article by V. Chemm, secretary of the Central Committee of the Communist Party of Latvia: "Increasing the Return From the Feed Field"]

[Text] Under the last five-year plan the republic did not fulfill its assignment for the delivery of meat and milk to the state. Last year the sale of meat to the state increased by only 1 percent, and the sale of milk even decreased.

The poor feed base impedes the development of this important branch. Therefore the question of feed production on the kolkhozes and sovkhozes of the republic was considered by a plenum of the Central Committee of the Communist Party of Latvia. It earmarked concrete ways of solving this problem.

As usual, grain crops will play an important role in solving the problem of feed production. In order to satisfy the needs of the state and the demands of Latvian animal husbandry for concentrated feeds, it is necessary to increase the regular gross grain production by more than 2 million tons a year. The main thing here is to increase the productivity and reduce losses during harvesting. There are significant reserves. Last year, for example, we planned to obtain 24-25 quintals of grain from each hectare, but we harvested only 17.2 quintals, and the farms of Balvskiy, Ludezenskiy, Rezeknenskiy and several other rayons harvested even less. On the majority of the farms the crop was not bad, but there were losses during the time of the prolonged harvesting.

Many of our kolkhozes and sovkhozes have still not learned to maneuver the strains of grain crops with various ripening times and did not create a harvest conveyor. And this measure, as the experience of the leading workers shows, makes it possible to gather the grain without hurrying too much and without overloading the combines, dryers and automotive transportation, so that with the same equipment it is possible to achieve more. This is why, along with strains that have already been tested on the fields of the republic, it was decided to plant new ones on large areas. Among them, for example, are the Abova, Otra, VV-6326, Dneprovskiy-435 and other strains of barley. This year 257,000 hectares have been allotted for the new highly productive strains.

One of the important agricultural crops that make it possible to improve the supply of feeds to the farms is potatoes. In terms of the output of feed units per hectare they significantly surpass many other crops. But they are not used much as feed for livestock. What is worse, certain farms which raise hogs use only the concentrated type of feeding. We are correcting those managers because we think that every hog raising farm must develop potato raising and use the potatoes on the farms both in pure form and for storing up mixed silage and preparing mixed feeds. According to the calculations of specialists, in order to have the necessary quantity of potatoes for feed purposes, it is necessary to increase their average annual production by 37 percent--to 900,000 tons. But potato planting is not increasing significantly. And the productivity of the potatoes must be increased from 110 to 160 quintals per hectare.

This is a quite realistic task. After all, from year to year the Lachplesis Kolkhoz in Ogrskiy Rayon, the Yaunays komunars Kolkhoz in Saldusskiy Rayon, the Padom'yu Latviya Kolkhoz in Rizhskiy Rayon and a number of others obtain 250 and more quintals of tubers per hectare. But in order to reach the level of the leading farms, it is necessary to radically improve seed growing. To do this all rayons have singled out specialized seed growing farms, where they have arranged the production of seeds of high reproductions, including such strains as Omega, Adretta and Ogonek. They have also begun extensive construction of modern potato storehouses.

The plenum of the Central Committee of the Communist Party of Latvia discussed the need to increase the authority of specialists who are reponsible for potato growing. The farms have introduced the position of head potato grower, and candidates for this position are approved by the party raykom.

In our republic 46 percent of the agricultural land is occupied by grasses. As we know, feed from grasses is the most biologically valuable and economically effective. The problem is that many farms are obtaining poor yields. Why the Triakta Kolkhoz in Valkskiy Rayon, the Straume Kolkhoz in Saldusskiy Rayon, the Ietseva Kolkhoz in Bauskiy Rayon, the Sovkhoz imeni Lenin, the Sovhoz imeni 50-letiye SSSR and a number of others are obtaining 90 quintals of hay per hectare, the Pirmays Mays Kolkhoz in Aluksnenskiy Rayon, the Kolkhoz imeni Leon Paegla in Glubenskiy Rayon, the Irlava Sovkhoz and the Dzerbene Sovkhoz obtain only 10.3-13.3 quintals. A good deal of land on these farms is planted in perennial grasses that have been there for more than two years. Only half of the area allotted for perennial grasses is utilized intensively.

Serious measures are being taken to eliminate these shortcomings. The creation of a system of seed growing for perennial grasses has been basically completed. They have constructed 23 highly mechanized points for cleaning and preparing their seeds. This fully satisfies the needs of the farms of the republic. Now we are carrying out the second half of the task--we are creating a stable basis for initial cleaning and storage of the threshed seeds of perennial grasses.

As the experience of the Valmiyerskiy agro-industrial association showed, interfarm enterprises for preparing feeds are becoming a good organizational form for the intensification of work with meadows. There they drained 1,500 hectares of marshy lowlands next to Lake Burtniyeka. In conjunction with the rayon Sel'khoztechnika several kolkhozes and sovkhozes created an enterprise which satisfies a

significant part of the rayon's demand for granules and briquettes made of grasses and exchanges them for concentrates. Similar interfarm enterprises are being created in Valkskiy, Yekabpilsskiy and other rayons.

Cultivated pastures occupy a special place in the republic's feed balance. They produce the least expensive summer feed and play an important role in the production of milk and meat. For each cow and non-calving young cow our kolkhozes and sovkhozes have an average of 0.46 hectares of cultivated pastures. This would seem to be enough. But in recent years the productivity of the pastures can no longer satisfy us.

The reason for the decreased productivity of the pastures is the thinning of the grass stand because of many years of bad weather. The Latvian Scientific Research Institute of Animal Husbandry and Veterinary Medicine has developed recommendations for accelerating the renewal and restoration of the pastures. This year alone 11,000 hectares of pasture land will be radically improved through this technology and 30,000 hectares will be replanted.

Other measures are also being taken to strengthen the republic's feed base. For example, all the annual grasses are being planted on fallow, and the proportion of legumes in the mixtures is being increased considerably. Only highly productive strains and hybrids of corn are being cultivated. In order to compensate for the shortage of sugar in the rations, areas planted in semisugar beets are being expanded. By utilizing the highly productive single-sprout strains of feed beets and applying chemical means of plant protection and advanced agrotechnology, it is intended to increase the gross production of root crops to 900,000 tons by 1985, a 1.5-fold increase over 1981.

One of the most serious problems of protein. In order to increase the production of vegetable protein we are expanding the areas planted in clover, alfalfa, lupine, peas, beans, vetch and a number of other leguminous crops. We are also expanding the utilization of such sources of protein as wastes from enterprises of the food, meat, dairy, and fish industry as well as other branches of the national economy.

About 70 percent of the republic's crop growing products are used on animal husbandry farms. This fact alone has made it necessary for the kolkhozes and sovkhozes to turn feed production into a specialized branch. This is the first year that specialized farm subdivisions for preparing feeds are in operation on the Nauksheny Kolkhoz in Valmiyerskiy Rayon, the Tervete Kolkhoz in Dobel'skiy Rayon, the Adazhi Kolkhoz in Rizhskiy Rayon, the Olayne Sovkhoz and a number of other farms. The feed procurement workers have been assigned feed lands and technical equipment, and they have been given concrete production assignments. Problems of moral and material incentives for the workers are being solved. So this requirement of the Food Program that was approved by the May Plenum of the CPSU Central Committee is being steadily met.

This year all kolkhozes and sovkhozes have already created specialized subdivisions for producing and procuring coarse and juicy feeds. They deal with all problems of feed production--from planting feed crops to harvesting and storing them.

The first positive strides have been taken. With an overall plan for procuring 817,900,000 tons of feed units, in July alone they stored up 538,400,000 tons. Haying is proceeding at more rapid rates than previously. Considerably more hay has been stored up this year than last year, and many rayons have already overfulfilled the plan for its procurement. The storing up of silage is also proceeding more rapidly than it did last year.

11772
CSO: 1824/530

LIVESTOCK FEED PROCUREMENT

MEASURES TO PREVENT DESTRUCTION OF FEED BY FIRE INDICATED

Riga SOVETSKAYA LATVIYA in Russian 6 Aug 82 p 3

/Interview with A. Yemel'yanov, deputy chief of the Administration of Fire Protection of the Latvian SSR Ministry of Internal Affairs, by T. Kolgushkina: "To Protect Feed Against Fire"; date and place not specified/

> /Text/ The sunny weather that has set in gladdens agricultural workers: The rates of field work have accelerated. At the same time, however, cases of the procured feed catching fire have become more frequent during the hot days. In connection with this our correspondent T. Kolgushkina met with A. Yemel'yanov, deputy chief of the Administration of Fire Protection of the republic's Ministry of Internal Affairs, docent, candidate of technical sciences, winner of the Latvian SSR State Prize, and asked him to answer several questions.

/Question/ Anatoliy Petrovich, obviously, the hot summer adds concern to the organs of the State Fire Inspectorate.

/Answer/ Yes, this is so. On a number of farms by no means everything is satisfactory as far as fire prevention is concerned. The situation is especially alarming in Valmiyerskiy, Aluksnenskiy, Ludzenskiy, Kraslavskiy and Balvskiy Rayons, where fires occurred, resulting in the destruction of a significant amount of coarse feed. More than 100 tons of hay burned on the Alsviki Sovkhoz in Aluksnenskiy Rayon and on the Nautreny Sovkhoz in Ludzenskiy Rayon the other day.

/Question/ What are the causes of such fires?

/Answer/ There are cases of spontaneous combustion of feed. However, they cannot be justified by references to the hot weather. In order to avoid spontaneous combustion, it is only necessary to follow the All-Union State Standard--the moisture of the procured hay should not exceed 17 percent. Unfortunately, not all farms have followed this strictly up to now.

Experience shows that fires occur mostly on kolkhozes and sovkhozes where labor discipline is low and where the most elementary fire safety rules are ignored.

The valuable initiative of people's deputies of Saratov Oblast--to develop an all-Union campaign with the slogan "Everything That Is Grown Must Be Preserved!"--undoubtedly will help rural workers to speed up the accomplishment of the tasks set in the USSR Food Program. I would like to stress here that a strict observance of fire safety rules is an important condition for the preservation of the grown harvest and feed.

Official statistics lists about 150 different causes of fires in agriculture. However, negligence and irresponsibility are the main ones.

Many fires can be prevented if the generally simple precautionary measures indicated in the fire safety rules for agricultural enterprises, which, incidentally, are available on every kolkhoz and sovkhoz, are strictly observed. Here is only one example of what the disregard of these rules leads to.

On 20 July a fire broke out at the coarse feed warehouse of the Kolkhoz imeni Karl Marx in Preylskiy Rayon. The fire destroyed the building and 20 tons of hay. It turned out that a short circuit in the system of electric equipment of the MTZ-50 tractor, which was at the warehouse at the time, was the cause of the fire.

City dwellers give active help to rural areas during the summer season. They also must know and observe the rules. The duty of managers of city enterprises and farm specialists is to familiarize people with them before the beginning of work. Fire safety requirements should be fulfilled by city dwellers both where they work and where they live temporarily.

/Question/ What has fire protection undertaken and, in general, what should now be done to prevent the destruction of the procured feed and grown harvest by fire?

/Answer/ The organs of the State Fire Inspectorate checked the state of all agricultural facilities, feed procurement machines, units and harvesting equipment on every farm. Farm managers were instructed to take urgent measures to eliminate the uncovered shortcomings.

Taking weather conditions into consideration, it is necessary to keep all fire control equipment in constant readiness. Farm managers should once again give thought to the system of fire warning and of an immediate delivery of fire equipment. It is necessary to again check the working order of fire electric and water supply and of heat generating devices and the observance of fire safety norms at fuel and lubricant warehouses and at places where drying units are installed.

Special attention should be drawn to the observance of instructions during the performance of various repair, primarily welding, operations and during the operation of units for the preparation of grass meal and so forth.

I have already stated that the readiness of equipment has been checked on all farms by now. According to the check results, the organs of the State Fire Inspectorate were forced to stop the further operation of a number of units and installations until they are restored to a condition making it possible to utilise them without the danger of a fire breaking out. Administrative proceedings were instituted against some farm managers.

/Question/ However, is the elimination of shortcomings at times leading to fire always within the power of farm managers and specialists?

/Answer/ Unfortunately, not. Therefore, I would like to draw the attention of the Ministry of Agriculture and other ministries and departments in the republic connected with the activity of rayon agroindustrial associations to the need to help kolkhozes and sovkhozes more in the implementation of fire prevention measures and to intensify control over the observance of fire safety measures. All this will increase production profitability and lower losses due to fire so that the fixed material expenditures are repaid generously and national property is safer.

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CSO: 1824/486

CONCERN FOR SUMMER PASTURES, LIVESTOCK PRODUCTION STRESSED

Moscow SOVETSKAYA ROSSIYA in Russian 31 Jul 82 p 1

/Article by Yu. Shakutin: "Summer Pastures"/

/Text/ Russia does not lack for pasture lands. There are 59 million hectares of natural pasture land at kolkhozes and sovkhozes throughout the republic. Of this amount, 3 million hectares are cultivated. This represents a tremendous wealth. The principal concern is how they are utilized and how the summer grazing can be organized so as to ensure that the pastures produce a maximum return.

The daily milk yields (according to data for 26 July) indicate that by no means are all of the republic's regions making full use of the opportunities afforded by the summer. Whereas for Russia on the whole a forage cow is now producing 8.8 kilograms of milk daily, or 800 grams more than for this same period last year, in the North Osetian and Kalmyk ASSR's, Novosibirsk Oblast and Khabarovsk Kray the milk yields at the present time are considerably lower than those for last year. Nor did this occur by accident. At one time, very little concern was displayed in these regions for the creation of cultivated or irrigated pastures. The natural pastures as a rule, especially in light of this year's drought conditions in the eastern regions of Siberia, produce fewer feed units per hectare. Hence, the low return.

The experience of many farms in the Tatar ASSR serves as an example of why the summer pastures must be organized. Here there are 147,000 hectares of cultivated irrigated pastures. There is more than one quarter of a hectare of excellent land per cow. During the last five-year plan, for example, each hectare during the summer furnished 54 quintals of feed units. This year the grass stands are good. Around-the-clock grazing of the livestock has been organized on many farms. The pastures are grazed according to plots which are tended constantly. An abundance of green summer feed produces fine results. The best milk yields in the Tatar ASSR are being obtained at kolkhozes and sovkhozes in the Tatar ASSR -- 9.5 kilograms of milk per cow, or almost 1.5 kilograms more than the level for last year.

Today, with the food program having defined the long-range tasks, the livestock breeders in the Russian Federation must raise considerably their production of milk and meat during this current five-year plan and not only fulfill but in fact overfulfill the annual plans for selling these most important products to the state. Thus the organization and carrying out of the pasture period assume special importance. Correct action is being taken on those farms where feed production and also the tending of pasture lands have been singled out as an independent branch.

The feed brigade at the Zaprudnovskiy Sovkhoz in Kstovskiy Rayon in Gor'kiy Oblast, which is headed by Hero of Socialist Labor and recipient of the State Prize of the USSR M.I. Gogin, has operated for many years on the basis of this principle. The brigade has at its disposal 1,800 hectares of forage crops and pasture land.

The pasture period is being carried out in an organized and efficient manner on such farms as the Gigant Kolkhoz in Penzenskaya Oblast, the Tolmachevskiy Sovkhoz in Gor'kiy Oblast and on many others. On these farms, summer has truly become a period for obtaining a large amount of milk.

For the summer pastures, just as for the harvest period, a high value is placed upon each day. This applies in particular to those rayons where the summer is of brief duration and the livestock are assigned to grazing at a late date. But, as an example, let us take the republic's western Siberian and Far Eastern regions. Summer is at its peak and here there can be no boasting of large milk yields. In many oblasts falling within these regions, less milk is being obtained than was the case last year. This decline is explained to a certain degree by the dry and hot weather which has prevailed since the beginning of summer and this naturally has affected the condition of the pastures. However, at the present time, with rain having fallen in all areas, the situation has changed and urgent measures must be undertaken so as not to overlook the summer milk.

This is why a maximum amount of attention is required from those who bear responsibility for the carrying out of the pasture period. First of all, thrifty use must be made of each hectare of pasture land, especially cultivated and irrigated hectares.

At the present time, a great deal is dependent upon those working directly on the farms -- shepherds, milkmaids, zootechnicians and veterinary doctors. The work performed by livestock breeders is no easier during the summer than it is in the winter, although it might appear this way at first glance. The pastures are not always located alongside the farms. Quite often the cattle are driven to summer camps which are located at some distance from the populated points. This in turn creates additional difficulties. It becomes necessary to transport the milkmaids back and forth. Complications arise in connection with making water available, shipping the products and so forth.

The leaders of farms and the party and professional trade union organizations must display concern for the livestock breeders and ensure that they are provided with all of the conditions required for highly productive work.

The republic's livestock breeders are confronted by a tense and important period. The summer milk yields, the weight increases in the livestock and, in the final analysis, the fulfillment of the plans for the second year of the five-year plan are all dependent upon the skills possessed by the livestock breeders, upon their displaying a conscientious attitude towards their work and upon the work being carried out in an organized and efficient manner.

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CSO: 1824/480

FOOD PROCUREMENT PROBLEMS IN BASHKIR ASSR REVIEWED

Moscow PRAVDA in Russian 28 Jul 82 pp 1-2

/Article by N. Mironov, Bashkir ASSR/

/Excerpts/ For a long period of time, the residents of the bottom land of the Belaya River, with its numerous tributaries, have quite properly referred to this land as a bread-winner. The flooded meadows have been praised for the multi-colored and lush grasses found there. Regardless of the weather conditions, these grasses have always been pleasing to the eye in terms of their succulent verdure and they have benefited the peasants. Nor has this bottom land decreased in size. In recent years, as a result of assistance furnished by the state, it has been increased by more than 100,000 hectares of irrigated land.

The farms of Meleuzovskiy, Salavatskiy, Sterlitamakskiy, Karmaskalinskiy, Ufimskiy, Kushnarenkovskiy, Dyurtyulinskiy and Ilishevskiy Rayons are located along the Belaya River. In recent years the economies of many farms in this region have become stronger. In particular, the livestock breeders have realized considerable successes. The feed base of the farms is becoming more reliable. An important source for supplementing it -- the bottom land, natural meadows and pastures. Improved and cultivated lands.

"We are not using the bottom land as we should" admitted specialists from the Ministry of Agriculture for the Bashkir ASSR, "We are relying more upon arable land for our feed."

What is true, is true. We are accustomed to associating livestock productivity only with forage fields. Twenty percent of the overall sowings for such fields is a small amount! Thirty percent -- a good amount! An attempt is being made to achieve such a ratio. The natural haying and pasture lands are not being taken into account in all areas. It is believed that this represents one of the reasons for the excessively slow work associated with achieving radical improvements in the meadows. They are referred to only as an aid, when in fact they are a most important part of the feed base. The funds and manpower employed for improving the meadows are returned a hundredfold.

It would seem that full use should be made of all sources for supplementing the feed supplies and that the work should be organized in a skilful manner. The arable land would them produce more grain, including forage grain.

Today many farms have specialized harvesting-transport brigades and teams for procuring forage. Feed production has been singled out as an independent branch. It is headed by the chief specialists or deputy chairmen of kolkhozes. More extensive use is being made of the brigade contract method and payments in kind. For example, up to 15 percent of the feed on farms in Ufimskiy Rayon is being issued to those who assisted in its procurement.

On many farms throughout the republic, an attempt is being made to coordinate material incentives more closely with the final results. True, this is not always being achieved. The fact of the matter is that the quality of the feed more often than not is determined after it has already been stored. Quite often it is impossible to correct the situation or to fix the blame for violation of the technology employed. Even at such a large farm as the Yumatovskiy Sovkhoz, considerable quantities of dried out and at times even moldy hay, as well as low quality silage, are often found.

"What do you wish? We have only one laboratory worker" complained the chief veterinary doctor for the sovkhoz D. Mukhamadeyev, "Essentially, we determine only the moisture content of the feed; the remaining analyses are carried out in Ufa. This requires time.

The feed procurement specialists are being betrayed by the equipment. During the past few years the republic's farms have been supplied with new and highly productive equipment. However, this equipment is complicated of operation and frequently breaks down. The servicing of such machines must be carried out by Goskomsel'khoztekhnika. There is a shortage of packaging materials for grass meal. The republic's farms must place in operation silage and haylage facilities having an overall capacity of 1.8 million cubic meters. The work at these installations is proceeding all too slowly.

To procure for the winter no less than 1.2 million tons of hay proximately 2 million tons of haylage and 175,000 tons of vitamin-grass meal and to keep the cattle fully supplied with feed -- such are the obligations undertaken by the agricultural workers in the autonomous republic. These goals are fully attainable. This certainly holds true if everything grown out on the fields and meadows is harvested in a timely and complete manner.

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HAY PROCUREMENT DELAYS IN BURYAT ASSR SCORED

Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 82 p 1

/Article by M. Babintsev, Buryat ASSR: "While the Grasses Become Overripe"/

/Excerpts/ Fine grass crops have developed this year in all areas throughout the Buryat ASSR. The haying areas on the bottom lands of Baltic rivers are especially rich.

However the haying rates for the autonomous republic on the whole are far from those expected. By the middle of July, the grasses had been mown on less than 1 percent of the areas. On farms in Kurumkanskiy, Barguzinskiy, Bauntovskiy and Severo-Baykal'skiy Rayons, where the highest grass stands have developed on taiga meadows, almost one half of the tractor mowing machines have not been repaired. A large quantity of equipment is lying idle in Khorinskiy, Kyakhtinskiy and Mikhorshibirskiy Rayons. The kolkhozes and sovkhozes in this zone are supplying their farms mainly with imported feed, although the possibility exists of obtaining a fine supply of internally produced forage. Of 162 AVM's /forced ventilation machines/ available in the republic, only 34 are in operation. As a result, only 300 tons of dehydrated feed, of 37,000 tons planned, have been produced.

It appears that the busy haying season has taken the farm leaders and specialists by surprise. By habit, they have come to relying more upon receiving assistance from the side than using their own resources. This is the result of inactivity, weak control and lack of interest on the part of the services of the Ministry of Agriculture for the Buryat ASSR and the rayon agricultural administrations. Recently I asked the chief of the livestock production branch of the republic's Ministry of Agriculture, E.A. Dashiyev, how much feed was expected to be obtained in the Buryat ASSR?

"You have asked the wrong party" replied this worker, who more than anybody else should have been concerned regarding the supply of forage for the farms, "This problem concerns our Farming Department."

I then turned to the Farming Department and inquired as to the amount of equipment being employed for the haying operations. A similar answer was received:

"Equipment is the responsibility of the Mechanization Department, whereas our concern rests with the land."

I received roughly the same responses from many other rayon agricultural administrations. How is it possible for a zootechnician of an administration, who is responsible for the development of livestock production, to carry out his work without knowing what kind of feed base will be available today or tomorrow? And how effective can be the work of the agronomic service if it is isolated from the other branches?

This year the kolkhozes and sovkhozes in the Buryat ASSR must procure 570,000 tons of hay and 190,000 tons of haylage. The grass and forage crops cultivated reveal that these supplies can be increased by at least a factor of 1.5. In order to solve this task, those numerous machines and units which presently are lying idle must be moved out onto the meadows as rapidly as possible. The task is one of joining forces and achieving a high level of labor organization at all levels. In the meantime, while greater activity is being stimulated, the grasses continue to become overripe, losing their valuable nutritional properties. While for all practical purposes the procurement of hay and haylage is only just commencing.

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LIVESTOCK FEED PROCUREMENT

TATAR ASSR FEED PROCUREMENT TACTICS DESCRIBED

Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 82 p 1

/Article by V. Goncharov, Tatar ASSR: "Tactics Dictated By Weather"/

/Excerpts/ The weather has not indulged the farmers in the Tatar ASSR. For every 2-3 good days there have been twice as many rainy ones. But the feed procurement specialists are aware that no delays can be tolerated. All of the kolkhozes and sovkhozes have commenced their haying operations. Four hundred and forth nine harvesting combines and hundreds of tractor mowing machines have moved out onto the feed lands and 530 units for the preparation of dehydrated feed are in operation. All of the equipment was prepared in good time for the busy harvest season and at the present time the efforts of the feed procurement subunits are being directed towards ensuring that it is is used in a highly efficient manner.

Many examples could be cited highlighting the skilful organization of haying operations in the autonomous republic. The stacks of hay are increasing rapidly in Drozhzhanovskiy, Zelenodol'skiy and Zainskiy Rayons and the storehouses in Aktanyshskiy, Aksubayevskiy and Alekseyevskiy Rayons are being filled with grass meal. Special attention is being given this year to the procurement of this feed throughout the Tatar ASSR. Pick-up balers, ventilation units and heating elements have been included in the work. The Kalininskiy Sovkhoz in Vysokogorskiy Rayon and some farms in Al'met'yevskiy Rayon have begun preparing grass chop, for the very first time, on drying units with subsequent pressing into bales. The advantages are obvious -- there is better retention of the nutrients and space is saved in the storehouse.

Each good hour of time is being utilized for the preparation of feed. Chemical preservatives are being employed in all areas during the filling of the haylage trenches. The sun-drying of fodder is being carried out in the windrows only to the extent that it can be rapidly harvested prior to the next rainfall. Such tactics is making it possible to harvest the grasses in the absence of considerable nutrient losses. Analyses carried out by an express-laboratory confirm the high quality of the forage.

The green production line is being operated on a continuous basis. A large role here is played by leguminous grasses, the areas of which are increasing with each passing year. The milk yields are increasing. As a result of receiving 50-60 kilograms of fodder daily, the cows are furnishing one half kilogram of milk more than they were a year ago.

The agricultural workers are receiving assistance from city-dwellers -- the collectives of industrial enterprises and institutes. They are working out on forest strips, in ravines and gullies and on other unsuitable for farming lands. The residents of the capital of the Tatar ASSR are making a worthy contribution towards the green harvest. The newspaper VECHERNYAYA KAZAN' /Evening Kazan'/ reports daily on the contribution being made by motor builders, transport workers, chemists, sewing industry workers builders and assemblers in the procurement of feed.

The plans call for more than 5 million tons of feed units to be stored away for this year's wintering period. The grasses have already been cut down on more than one half of the areas.

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LIVESTOCK PROCUREMENT OPERATIONS IN TOMSK OBLAST

Moscow IZVESTIYA in Russian 15 Jul 82 p 1

/Article by L. Levitskiy: "Higher Haying Rates"/

/Text/ To carry out the haying work during the best periods, to prevent losses and to keep the farms well supplied with coarse and succulent feeds -- such are the tasks of the day.

To store for the winter 20 quintals of feed units of hay, haylage and silage and 1 ton of grass meal per standard head of cattle -- such is the goal of the farms in Tomsk Oblast. Almost 300 feed procurement detachments have been formed throughout the oblast. The majority of them are employing the brigade contract method in carrying out their haying work. Payments based upon the final products have already proven their worth in the production of grass concentrate. More of it has been placed in storage than was the case at this same time last year.

The farmers are receiving considerable assistance from city-dwellers. The latter have vowed to obtain 135,000 tons of fodder from unsuitable lands. With their active assistance, 37 feed preparation shops and concrete trenches for 140,000 tons of haylage and silage are being established. An oblast and rayon headquarters for the procurement of feed have been established and are operating in an efficient manner.

In terms of its nutritional value, a ton of hay or silage obtained at the present time is equivalent to at least two tons obtained at the end of summer.

"The quality of the feed and its proper preservation is a chief concern at the present time" stated the director of the Tomsk Agricultural Experimental Station, Hero of Socialist Labor L. Anokhin, "This is why we commenced our mowing work considerably earlier than usual."

The station is a large, profitable and multi-branch establishment. Six thousand cattle are being maintained here at complexes of the industrial type. Cows constitute one half of the herd. The milk yields are in excess of 3,000 kilograms annually. Livestock production on an industrial basis requires stable industrial feed production. It has been created. The station's machine operators are raising the cheapest feed in the oblast. An experiment concerned with creating a reliable feed production line, one which can endure all types of weather, is valued very highly.

This year the feed procurement production line commenced operations on 20 June, by which time the awnless brome grass had ripened. The following crops are ripening in July: meadow fescue, clover with timithy and pulse crops such as alfalfa, peas and vetch in a mixture with peas. This is truly a production line! The harvesting work is being carried out simultaneously with the sowing of late grasses and rape. The feed procurement detachments are being held materially responsible for the final results. The additional payment for outstanding quality often exceeds the basic payment for quantity.

The dry spring and hot summer did not favor the growth of the grasses.

"We had hoped to obtain more" confessed machine operator Viktor Sapegin of the Luchanovskiy Branch. He was the first to commence mowing the grass and others followed his example. Viktor's shift norm -- 11 hectares.

"I mow uniformly so that it can be placed in a trench" he stated, "There is but one principle -- retain the quality. The task of the detachment -- 1,600 tons of haylage and 400 tons of hay clippings. It is more profitable for the detachment to produce more."

The machine operators are offered fine incentives for laying away hay clippings: a direct payment per ton and bonuses. Why? The retention of carotene, protein and sugar in it is much higher than in hay or haylage. Considerable gain is also realized in labor productivity. Compared to hay procurements, it is higher by threefold here. The clippings are dried to roughly 25-28 percent of the moisture content for haylage. The bulk is also placed in trenches and carefully covered over with plastic. Recently a special committee carried out a check on an "underground stack" following 3 years of storage. The quality of the clippings was still excellent.

The oblast's farms still have a great deal to do in order to supplement their feed supplies. It is the middle of summer and the first cutting of the grasses has been carried out on only one half of the areas. This could result in a considerable shortfall in the crop. Considerable reserves are available for accumulating feed. For example, the plans call for approximately 100,000 additional hectares of land to be developed. Detachments have been formed for procuring hay in the northern part of the Priob'ye region. A top dressing is being applied to the fields and meadows in order to encourage the rapid development of succulent aftergrowth.

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LIVESTOCK FEED PROCUREMENT

FEED CROP PROGRESS IS YAROSLAVL OBLAST DISCUSSED

Moscow PRAVDA in Russian 8 Aug 82 p 1

/Article by V. Alekseyev, correspondent of the oblast newspaper SEVERNYY RABOCHIY, M. Subbotin, inspector of the oblast committee of people's control, and Z. Bystrova, PRAVDA correspondent, Yaroslavl Oblast: "At the Height of the 'Green Harvest'"/

/Text/ Hay mowing is at its height in Yaroslavl Oblast. Many of the oblast's farms try to ensure the growth of production of feed and to improve its quality. For example, on the Kolos Kolkhoz in Tutayevskiy Rayon bales of fragrant hay stored for winter have been placed under a roof. Sufficient fodder has been procured on the Krasnyy Oktyabr' Kolkhoz in Lyubimskiy Rayon. The production of granules and pellets has been organized here efficiently. Even two neighboring farms will be provided with them.

Is such great concern for the quality of feed always manifested? Unfortunately, not.

Here is a familiar picture. There are small stacks in fields. They stand, exposed to bad weather. Specialists maintain that during such storage the nutritiousness of hay is lowered 20 percent. Even the simplest sheds have not been built on a number of farms. Only one-fifth of the hay will be stored in shelters. A little more than one-half of the silage is placed in capital trenches.

At first glance the situation with feed procurement is not bad on the Kolkhoz imeni Pervogo Maya in Nekrasovskiy Rayon, where the raid brigade of PRAVDA visited. Reports indicate a high percentage of mowed areas. But there is no concern for the quality of feed and a reduction of losses. Green fodder is transported on vehicles not adapted for this. Such a productive unit as the pick-up baler is out of order. The people intended to equip a hay shed, but they did not do this. Other concerns distracted them.

Of course, as stated above, in the oblast there are many farms where the "green harvest" is proceeding in an organized and thought-out way. On such kolkhozes and sovkhozes there is no need to remind the people of the quality of feed and of the necessity to observe technology.

The oblast's rural workers set for themselves the task of storing plenty of feed. Recently, areas under high-yielding fodder crops have been expanded. The material base of feed production is being strengthened. For example, farms have received

700 new Yaroslavets self-propelled silage harvesting combines. Great hopes are pinned on the combine. However, as this harvesting campaign has shown, in itself, without an efficient and reliable organization of labor, a machine is of no decisive significance. On some kolkhozes and sovkhozes it is used productively. There every unit procures 10,000 tons of green fodder. But on some farms only 2,000 tons are procured.

For example, the Poultry Factory imeni 50-Letiya SSSR in Tutayevskiy Rayon was able to organize work efficiently. The Yaroslavets operated well. All silage trenches were filled with its assistance. Following the experience of farms near Moscow hay is preserved here. Densely packed fodder with a low moisture is placed under a film. N. Dzhincharadze, factory director, especially praised the link engaged in units for the fire drying of grass.

"As soon as the results of analysis are worse, for example, there is less carotene," link leader G. Borisova says, "we sound the alarm. The 'green conveyer' has been organized satisfactorily."

We discussed the quality of feed with the specialists of the oblast planning and surveying station of chemicalization of agriculture, which was also entrusted with controlling it. Here are the results of the latest tests. Basically, fourth- and fifth-category vitamin meal is procured. This is due mainly to the fact that overripe grass is received for processing. About one-half of the silage mass is included in the second and third categories.

Obviously, control over the quality of work has been weakened on a number of farms. Ye. Savinova, senior zootechnician at the station, came to the Znamya Pobedy Kolkhoz in Bolsheselskiy Rayon recently. She took samples of grass meal. People surrounded her. This was the first time during the entire hay harvest that they were interested in the results of the brigade's work. Kolkhoz members did not see specialists from the rayon, or their own specialists, near the fire drying unit even once.

The "green harvest" is continuing. Its success largely depends on the organization and efficiency of actions of all feed procurement officials. It is important that the experience of advanced workers able to establish a firm feed reserve under any weather conditions becomes known to everyone.

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LIVESTOCK FEED PROCUREMENT

INFERIOR REPAIR OF AGRICULTURAL MACHINES IN IVANOVO OBLAST SCORED

Moscow TRUD in Russian 5 Aug 82 p 1

/Article by V. Knyazev, TRUD correspondent, Ivanovo Oblast: "Skillful Maneuver of Equipment"/

> /Text/ Hay mowing is now in full swing in rural areas. It is necessary to value every hour of the green harvest, to skillfully utilize equipment and to efficiently organize the labor of rural workers, as well as of city dwellers who have come to their aid. Kolkhozes and sovkhozes in the RSFSR have procured 17 million tons of hay. The rates of work on meadows in the nonchernozem area have increased considerably. However, Kostroma, Novgorod, Vologda and some other oblasts are still slow in mowing grass. Feed procurement officials in Belorussia and Moldavia are working in a shock manner. Last year's result in haylage storage has already been exceeded. The practical experience of advanced collectives demonstrates convincingly that kolkhozes and sovkhozes have everything that is necessary to greatly raise the rates of work in feed procurement and to harvest everything that is grown on meadows and fields without losses. A firm feed base for every farm!

Grass on meadows and fields in Ivanovo Oblast is now of rare richness. Where people are able to efficiently organize feed procurement and to maximally mechanize it, hay stacks are growing before their eyes. I had occasion to see precisely such a picture on the Rossiya Kolkhoz in Shuyskiy Rayon. In 1 day M. Starodubtsev's link stacked 80 tons of high-quality hay. The farm is close to completing the planned assignment for this type of feed.

The collective of the Gavrilovo Posadskiy Horse Plant has already attained the outlined goal, procuring 1,450 tons of hay. The assignment for the silaging of green fodder was exceeded there twice. Many farms in Puchezhskiy, Rodnikovskiy, Sokolskiy and some other rayons are conducting the harvesting campaign successfully. A reliable and trouble-free operation of equipment ensures the success of work here. In an attempt to accelerate rates, specialists and machine operators on advanced farms are searching for possibilities of reducing manual labor on fields and meadows. For example, on the Kolkhoz imeni Kalinin in Rodnikovskiy Rayon mowers with a shortened knife were put into operation on unsuitable land.

"One such unit enabled us to immediately free 10 mowers for other operations," kolkhoz chairman G. Zamyatin reported.

Efficiency experts on the Sakhtysh Sovkhoz in Teykovskiy Rayon headed by chief engineer B. Puzanov adapted a grain harvesting combine pick-up for grass turning.

"When hitched to a tractor, this simple device performs the work of 30 people," A. Fedayev, sovkhoz director, explained proudly. "Efficiency experts also manifested their sharpness in another matter. They mechanized the feeding of hay bales from the pick-up press to the cart body."

Experts also showed various finds on other farms in the oblast. This once again confirms that, where people count mainly on equipment and value every hour of the harvesting campaign, they profit.

Unfortunately, I also had occasion to see other cases. On the Novyy Byt Sovkhoz in Ilinskiy Rayon 7 out of 12 tractor mowers were laid up. Perhaps the farm harvested most of the grass and equipment was not needed? On the contrary, in the rayon report on hay procurement the sovkhoz occupies the last place. The mowers that were laid up were evidence of the poor repair of agricultural machines. For the same reason the self-propelled feed harvesting combine broke down. It seems that technical first aid should be summoned to the field and the malfunctions should be eliminated. However, the sovkhoz only dreams about such an organization of work. The work of an entire link was stopped there for half a day and the machine was repaired by joint efforts. After that there could not even be talk of the fulfillment of the shift norm.

Perhaps there would be no need to focus attention on these cases if they had been isolated and individual. But this is precisely the trouble--such practice is characteristic of many farms in the oblast. The low quality of equipment repair and its frequent downtime are the main causes of the lag in feed procurement in Zavolzhskiy, Furmanovskiy, Savinskiy, Ilinskiy, Komsomolskiy and some other rayons in the oblast. Having manifested unjustified complacency during the period of repair of agricultural machines, managers of kolkhozes and sovkhozes in the mentioned rayons seek explanations for the poor work in the unstable weather. The example of the oblast's advanced farms demonstrates the groundlessness of such arguments in the best way possible.

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LIVESTOCK FEED PROCUREMENT

FEED CROP PROGRESS IN ROSTOV OBLAST DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 16 Jul 82 p 1

/Article by Yu. Maksimenko, correspondent of SEL'SKAYA ZHIZN', Rostov Oblast: "Hay Mowing Rates Could Be Higher"/

/Text/ There is dense and succulent grass on the oblast's farms. Sovkhozes and kolkhozes have been procuring feed for more than 1 month. The first grass harvest is being completed and the second lucerne harvest is unfolding. In the zone of its guaranteed output on irrigated land, where this crop occupies 114,000 hectares, four or five harvests of green fodder are to be gathered. For now more than 700,000 out of the planned 1,500,000 tons of hay and 940,000 out of the 1,335,000 tons of haylage have been stocked.

The feed procurement conveyer is operating efficiently on fields in Tsimlyanskiy Rayon. Introducing advanced forms of equipment utilization, the Meliorator, Bol'shovskiy, Romanovskiy, Oktyabr'skiy and Dubentsovskiy sovkhozes are harvesting grass ahead of schedule.

"This summer," says A. Poluyan, first secretary of the Tsimlyanskiy Rayon Party Committee, "the overall method developed in the harvesting of grain crops is being widely utilized in feed procurement. A total of 32 harvesting and transport complexes have been formed. A technical assistance service has been organized and ideological support units operate. The job-contract-plus-bonus system is used for the remuneration of labor of feed procurement specialists. All these measures produce an effect. During the first harvest farms procured 30,000 tons of hay--more than 60 percent of the need--almost 17,000 tons of haylage and 3,000 tons of grass meal and feed granules."

Machines and tractor units assembled from three departments have been handed over to the harvesting complex of the Meliorator Sovkhoz. The administration has concluded with the machine operators of this complex a contract for feed procurement. It should gather and deliver 1,530 tons of hay to sections in 80 to 100 work hours. The job-contract-plus-bonus wages for feed procurement specialists are aimed at the performance of operations at the best time and in a high-quality manner. All the conditions for people's productive labor have been created. Machine operators have available a set of machines and receive prompt assistance from the farm's technical service. Three meals a day have been organized. The competition results are reviewed daily. The experience of the Meliorator Sovkhoz is widely popularized in Tsimlyanskiy Rayon.

Farms in Semikarakorskiy, Martynovskiy, Neklinovskiy, Matveyevo-Kurganskiy, Yegorlykskiy and other rayons have gathered the first harvest and are fulfilling the assignment for the accumulation of hay and haylage established by the schedule. Specialized links and detachments have performed almost the entire work here. Lucerne fields are now being topdressed and watered intensively in order to ensure a second high-grade harvest. The Kolkhoz imeni Kalinin in Kagalnitskiy Rayon utilizes the runoff of the local Kagalnik River for irrigation.

"We expect to obtain four lucerne harvests," says I. Telepaylo, chairman of this kolkhoz. "High-quality hay is sent to the dairy complex."

Nevertheless, advanced experience is not utilized everywhere. On farms in Veselovskiy, Kuybyshevskiy, Verkhnedonskiy and Myasnikovskiy Rayons the rates of grass harvesting are lower than the estimated ones. These farms have formally approached the establishment of harvesting detachments and complexes. Therefore, the output of units is low. Owing to technical breakdowns, machines are often idle. Hay is not procured everywhere by the active ventilation method.

Prolongation of the time of mowing, stacking and harvesting lowers the quality of feed and leads to its losses. It is not accidental that part of the haylage and hay dispatched by farms for analysis proved to be of a low quality. On many kolkhozes and sovkhozes there are no express laboratories and in Tatsinskiy Rayon many of them are inoperative for some reason. The quality of fodder is determined here by eye.

It is especially important to establish firm reserves of hay, haylage and other feed at dairy complexes, fattening areas and interfarm associations for the breeding and fattening of animals. The accumulation of fodder at the interrayon Proletarskaya and Bratskaya livestock fattening areas is proceeding better than last year. However, there is a serious lag in haylage and hay storage at the fattening complex of the Tatsinskoye Interfarm Association for the Fattening of Bulls.

Natural meadows and hayfields represent a big potential for the replenishment of feed reserves. In Kamenskiy, Morozovskiy and Oblivskiy Rayons natural land is used efficiently for hay procurement. Throughout the oblast, however, the beginning of grass harvesting on natural hayfields has been delayed. Early in July out of 11,000 hectares of natural hayfields on farms in Zimovnikovskiy, Aksayskiy and Bagayevskiy Rayons grass has not yet been harvested on vast areas.

The output of hay is not high, ranging from 2 to 10 quintals per hectare. As before, an increase in the productivity of natural hayfields remains a bottleneck in feed production.

There are now many green raw materials for the preparation of grass meal and granules on unproductive land, road shoulders and forest belts. Drying units operate in two shifts on farms in Salskiy, Neklinovskiy, Bokovskiy, Chertkovskiy and Tselinskiy Rayons. Owing to this the schedules of output of grass meal have already been exceeded here and the assignment for the procurement of granules has been fulfilled. However, throughout the oblast reserves of grass and feed granules are growing slowly. The productivity of units is low on many farms in Belokaltvinskiy, Kasharskiy and Bagayevskiy Rayons.

Operations on the fodder field are entering a crucial stage. Every hour is precious. The fulfillment of the plans for the accumulation of fodder and an improvement in its quality require the active efforts and initiative of managers, specialists and all rural workers.

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BRIEFS

MASS GRASS HARVESTING--Krasnodar--Vehicles with green fodder are running and powerful tractors are pulling stack movers with fragrant hay on steppe highways from morning till night. Stacks are growing on farms and fodder storerooms are being filled with grass meal and granules. Farmers in Maykopskiy Rayon are also storing a 1½-year feed reserve for the public herd. More than one-half of the necessary amount of haylage has been placed at the disposal of feed workers on farms in Krymskiy Rayon. Farms in Slavyanskiy, Kurganinskiy and Krasnoarmeyskiy Rayons are completing the mass harvesting of grass on the irrigated field. /By V. Mokrotovarov/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 23 Jun 82 p 1/ 11,439

SILAGE CORN PROCUREMENT--Stavropol--Today machine operators in Stavropol steppes have begun everywhere the procurement of feed from silage corn plantations, which occupy a vast area of more than 3 million hectares. The kray's kolkhozes and sovkhozes have undertaken the obligation to place a record amount of silage--no less than 5.7 million tons--in trenches now. This reserve will be sufficient to maintain a high productivity of dairy and meat herds and flocks and to reduce the expenditure of grain fodder during the entire forthcoming wintering period. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 8 Aug 82 p 1/ 11,439

COARSE FEED PROCUREMENT--Makhachkala, 5 Jul--The republic's kolkhozes and sovkhozes have undertaken the obligation to procure almost 1½ million tons of coarse feed--much more than the plan--this year. These days grass is being harvested everywhere, that is, on the plain, foothills and mountains. A total of 300,000 tons of various types of feed have been procured during the first 10-day period alone. Many farms have set for themselves the task of gathering no less than four or five harvests on irrigated areas and of obtaining 120 to 130 quintals of hay per hectare. Farms in Nogayskiy, Tarumovskiy, Kizlyarskiy, Babayurtovskiy, Novolakskiy and a number of other rayons are harvesting grass ahead of schedule. Workers of industrial enterprises give great help to feed getters. /By N. Komissarov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 6 Jul 82 p 1/ 11,439

ALPINE FODDER LAND--Ordzhonikidze, 12 Jul--Alpine and sub-Alpine land, which is rich in grass, has become the main base of fodder production in North Osetiya. Mass hay mowing has begun at the edge of permanent glaciers of the Central Caucasus. Specialized interfarm detachments are harvesting grass. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Jul 82 p 1/ 11,439

MOBILE PUMPING STATIONS--Taldy-Kurgan--The natural grasses have turned a bright green in color thanks to the work of mobile pumping stations, which have been placed in operation along the shores of the Karatal, Aksu, Lepsy and other rivers throughout the oblast. In all, the irrigation specialists allocated approximately 200 pumping units for this purpose. Their capability is sufficient for transforming 17,000 hectares of land into a supplier of vitamin hay. Mixtures of forage and pulse crops have been sown in the oblast and seed has been prepared for the planting of 10,000 hectares of corn plantations for silage, with the decision having been made to plant this seed following the winter grain harvest. Under local conditions, such post-harvest sowings are furnishing 150-200 quintals of fodder per hectare. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 9 Jul 82 p 1/ 7026

EFFICIENT WORK ORGANIZATION--Kustanay Oblast--The initial hundreds of tons of hay have been procured in Kustanay Oblast. The farms in the southern rayons -- Naurzumskiy, Zhetygarinskiy and Taranovskiy -- have commenced their "green harvest" work. The front of the haying operations is advancing rapidly into the northern party of Kustanay Oblast. The early and hot summer calls for a high tempo in harvesting the grasses. In order to ensure good wintering for the livestock, the plans call for 1.1 million tons of hay to be procured from an overall area of 2 million hectares. Success will be dependent to a large degree upon efficient organization of the work. This year the number of specialized feed procurement brigades in the oblast will be increased sharply. Feed procurement work will be carried out by 287 brigades. /by V. Vedenko/ /Text/ /Moscow KAZAKHSTANSKAYA PRAVDA in Russian 9 Jul 82 p 1/ 7026

FEED PROCUREMENT CAMPAIGN--During the course of a month's campaign devoted to procuring feed, the farms in Kazakhstan arranged one million tons of hay in stacks. A tense schedule is being followed successfully and in addition to perennial and annual grasses, common reeds and coarse-stalk plants are also being harvested along irrigation ditches and in ravines and gullies. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 30, Jul 82 p 4/

SPARE PARTS SHORTAGE--Kustanay Oblast--Following a period of abundant rain in Kustanay Oblast, hot weather has set in with the temperature in the shade at times exceeding 30 degrees. Those carrying out the haying work are encountering difficulties and yet they are working in a very diligent manner. The oblast's feed procurement specialists are successfully carrying out their obligations. But nevertheless the indicators could be better. Some farms are experiencing an acute shortage of spare parts for their haying and harvesting implements and machines. The organizations of Goskomsel'khoztekhnika must see to it that the missing spare parts are made available. /by V. Gafiatulin/ /Excerpts/ /Moscow TRUD in Russian 28 Jul 82 p 1/ 7026

ALL RESERVES IN USE--The farms in Kustanay Oblast have procured more hay than the farms in other oblasts throughout the republic -- more than four fifths of the plan. The farmers in Taranovskiy and Borovskiy Rayons have vowed to create a supply of hay for one and a half years. We have been informed by the Agricultural Department of the Oblast Party Committee that the potential is available for accomplishing this. The feed procurement brigades, equipped with harvesters and highly productive pneumatic pick-up attachments, are completing their harvesting of perennial grasses during the best periods. The equipment will be converted over for the sowing of annual grasses. Sudan grass, vetch-oats mixtures, Italian millet and feed millet are furnishing an average of up to 10 quintals of hay per hectare. The avenues for possible losses have all been closed completely. The

excessive drying out of grasses is not being tolerated. Once an optimum moisture content has been achieved, the grasses are picked up and arranged in stacks. The farms in Kamyshninskiy and Naurzumskiy Rayons were the first to cope with the plans for accumulating hay. An important source for augmenting the feed supply -- natural grasses that are cut down on unsuitable lands, in forests, alongside lakes and so forth. Ramal feed and common reeds are also being procured. The workers in Kustanay Oblast have already completed approximately 70 percent of their task for procuring haylage and vitamin meal. The farms in Chimkent and Kzyl-Orda Oblasts have completed approximately 70 percent of their hay procurement task. Here, and also in Dzhambul Oblast, the farms have over-fulfilled their plans for laying in haylage. The farms in Alma-Ata, Gur'yev, Pavlodar, Mangyshlak, Kokchetav and Turgay Oblasts are falling behind in their feed procurement work. Here only 33-38 percent of the hay procurement plan has been carried out. The post-harvest sowings of corn and other forage crops must be expanded in the southern oblasts. Here the farms are commencing their third cutting of alfalfa on irrigated lands. According to data supplied by the CSA for the Kazakh SSR, by 26 July almost 7.5 million tons of hay had been procured throughout the republic -- approximately one half of the task -- more than 60 percent of the planned amount of haylage and one third of the planned amount of grass meal. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 28 Jul 82 p 1/ 7026

SEMIPALATINSK FEED PLAN--Semipalatinsk Oblast--The machine operators in Urdzharskiy, Makanchinskiy and other southern rayons of the oblast have moved their hay harvesting equipment to inundation meadows and the foothills of the Tarbagatay Range. This year the Semipalatinsk workers, the farms of which occupy a leading place in the republic in terms of the number of sheep, intend to procure more than 2 million tons of coarse feed. This will make it possible to ensure a good wintering period for the public livestock. /by R. Gel'manov/ /Excerpt/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 9 Jul 82 p 1/ 7026

FEED PROCUREMENTS CONTINUE--Semipalatinsk Oblast--A burning hot mirage hovers above the steppe. But even during the hottest period of mid-day, just as during other times of the day, the rhythm of the grass harvesting work being carried out on the meadows of the Chitilek Sovkhoz continues unabated. The supplies of hay on the farms are increasing noticeably. The machine operators are striving to complete their grass harvesting work as rapidly as possible and to lay in an adequate supply of feed for the public herd. "All of the farm's workers are attempting to follow the example set by the experts" stated the secretary of the sovkhoz's party committee R. Bespayev, "We are publicizing the competition on an extensive scale during the course of the feed procurement work. Under the conditions imposed by this difficult summer, special importance is being attached to expertise and the use of leading work methods. The feed lands have had practically no rain whatsoever and yet the plan for the laying in of haylage was over-fulfilled here some time ago. The first cutting from an irrigated alfalfa field furnished 70 quintals of fodder: 4,800 tons of nutritional feed instead of the 3,800 tons called for. The meadows on the floodplains of the Talmenka and Chigilek Rivers are providing a worthy increase in the ration. Internal resources were employed here for building a system of catchwork irrigation. And although the moisture supplies here were not very great during the spring, nevertheless each hectare produced 11 quintals of fodder. One and a half tons of hay were procured. This is almost twice as much as was obtained by this same time last year. Three fourths of all of the feed was delivered to livestock production bases. The heat does not even

abate towards evening. But the personnel appear not to notice it as they continue their tense work. Only with the onset of darkness do they terminate their work. Then early the next morning the roar of motors fills the air once again in the steppe region. Each hour is valued highly as the rural workers strive to creat a reliable supply of feed on the farms as rapidly as possible. /by L. Reznikov/ /Excerpts/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 6 Aug 82 p 1/ 7026

SHORTAGE OF FARM EQUIPMENT--Kaluga Oblast--Hay mowing has begun everywhere in the oblast. The task of machine operators is to complete it in a short time and to ensure a high quality of feed. A total of 18 feed procurement brigades and links have been formed on farms in Dzerzhinskiy Rayon. They are to stack 22,000 tons of hay. Special attention is paid to irrigated hayfields. Feed is also being procured on natural land. Machine operators in Yukhnovskiy Rayon will obtain three lucerne harvests. This crop is new on the farm. It occupies 40 hectares, but each yields 120 quintals of green fodder. After the first harvest lucerne fields are topdressed and irrigated. The second harvest will be used for hay and the third, for silage and green dressing. However, on some farms equipment is not fully ready and there is a shortage of bags for vitamin meal. In Dzerzhinskiy Rayon last year two-thirds of the hay was pressed. Machine operators would be glad to repeat the experience now, but there is a shortage of twine. Rakes are worn out, but new ones cannot be purchased anywhere. Moreover, it is difficult to obtain spare parts for the old ones. Only two hay stackers are annually allocated for all the farms in the rayon. The shortage of equipment hampers the rates of feed procurement. Machine operators expect the help of the Agricultural Equipment Association and of the city's patronage enterprises. Hay mowing cannot wait. /By A. Glazkov/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 8 Jul 82 p 1/ 11,439

PROGRESSIVE FEED PROCUREMENT--Pskov--Meadow and sown grass grew rapidly after the abundant rain. Not losing time, the oblast's kolkhozes and sovkhozes have widely expanded feed procurement. It is carried out mainly by the progressive group method. /By A. Ivanov/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 23 Jun 82 p 1/ 11,439

SHORTCOMINGS IN FEED PROCUREMENT--Pskov Oblast--The oblast's advanced farms have begun hay mowing earlier than usually. The abundant rain and good topdressing contributed to a steady and rapid growth of grass. Farmers are now trying not to lose time and to gather the harvest on schedule. More than 300 mechanized feed getting links and detachments provided with the necessary equipment are operating on kolkhozes and sovkhozes. Many of them are operating by the brigade contract method. From the first days many farms in the oblast have adopted high rates of hay mowing. Workers in Novosokolnicheskiy Rayon are carrying out the green harvest on a large scale. The efficient specialization of mechanized links enabled the rayon's farms to simultaneously procure hay, silage and haylage. Advanced technology is widely used in the process. However, hay mowing is not proceeding in an organized way everywhere. Here and there people wait for grass to grow, losing precious time. The managers and specialists of some farms in Gdovskiy, Strugo-Krasnenskiy, Dnovskiy and Plyusskiy Rayons have adopted such a stand. A significant part of the feed getting equipment has not been put into operation here to this day. Specialized detachments and links have not been formed everywhere. In essence last year's mistake, when owing to the prolonged state of inactivity kolkhozes and sovkhozes in these rayons were unable to procure sufficient feed and left sections on hunger rations, is being repeated. /By Z. Vasil'yev/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 6 Jul 82 p 1/ 11,439

FEED PROCUREMENT BY ENTERPRISES--Kalinin, 5 Jul--It has long been a custom that both old and young participate in feed procurement during the hay mowing season. This is a very crucial time. Workers of many industrial enterprises consider it their duty to also take an active part in the provision of fodder for animal husbandry. Other enterprises in the oblast also perform a considerable volume of work in feed procurement on kolkhozes and sovkhozes under their patronage. /By D. Prosekov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 6 Jul 82 p 1/ 11,439

FEED PROCUREMENT TEMPO INCREASING--Barnaul, 21 Jun--The tempo of the green harvest in the Altay Kray is increasing. The feed procurement brigades and teams are supplying the storage areas on a daily basis with 3,000 tons of hay, almost 2,000 tons of grass meal and approximately 4,000 tons of haylage. The largest quantities of feed are being obtained by the farms in Blagoveshchenskiy, Biyskiy, Yegor'yevskiy, Mikhaylovskiy and Petropavlovskiy Rayons. The farmers are striving to reduce the pause between the mowing and placing of the feed in storage. The fields thus made available are being prepared for secondary sowings. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 22 Jun 82 p 1/ 7026

FIRST HAY CUTTING--Omsk, 8 Jul--This summer has served as a severe test for the oblast's feed procurement specialists. The dry spring and the beginning of summer held back the growth of the grasses. It was at this point that the farmers were aided by irrigation. The farms in Omskiy, Tavricheskiy, Gor'kovskiy and other rayons are obtaining 20-30 quintals of hay from their first cutting of irrigated meadows. In all areas the feed procurement work is being carried out by specialized teams and brigades equipped with modern equipment. Such subunits are presently operating in the oblast's northern rayons. /by M. Sil'vanovich/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 9 Jul 82 p 1/ 7026

HAY PROCUREMENT PLAN--This year the farms in the Mari ASSR have resolved to procure not less than 150,000 tons of hay -- almost twice as much as last year. At the present time, more than 50,000 tons have been placed in storage. /by L. Konorev/ /Moscow SEL'SKAYA ZHIZN' in Russian 20 Jul 82 p 1/ 7026

ASSISTED BY IRRIGATION--Saransk, 31 Jul--With the onset of dry weather, the sprinkling units have been turned on at kolkhozes and sovkhozes in Insarskiy, Chamzinskiy, Lyambirskiy, Bol'shebereznikovskiy and other rayons in the Mordovian ASSR. /by Yu. Shtatnov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 1 Aug 82 p 1/ 7026

MASS HAYING OPERATIONS--Izhevsk--The air above the meadows in the Udmurt ASSR, where haying operations are being carried out on a mass scale, is filled with the aroma of mown grasses. The green harvest is being carried out by more than 400 feed procurement detachments and teams, joined together in complexes. /Text/ /Moscow TRUD in Russian 8 Jul 82 p 1/ 7026

TOMSK FODDER HARVEST--Tomsk--Hundreds of representatives of enterprises, construction projects, institutes and transport organizations in the city of Tomsk

have joined in the harvesting campaign in an organized manner. Just as was the case last year, the residents of Tomsk are again employing the watch method of work this year in carrying out their feed procurement work. The detachments of mowing personnel, numbering some 20-30 individuals, are living permanently out on the meadows in specially equipped camps. They are mowing their grasses. The mowing is being carried out not only manually but also using horse-drawn and tractor mowing units. Many industrial enterprises have acquired such equipment. Using resources obtained from the city, the residents of Tomsk have vowed to complete their haying campaign in just 15 days and to procure no less than 130,000 tons of fodder, considerably more than was obtained last year. /by B. Ibrayev/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 6 Jul 82 p 1/ 7026

PROPER FEED STORAGE--Tatar ASSR--It is a relatively simple matter to procure feed for a small herd and yet it is considerably more difficult when a farm has a large number of cattle. It is not simply a matter of feeding the cattle and maintaining them on the farms, but also of obtaining high weight increases and milk yields. Nevertheless the task has been formulated for the workers in Aktanyshskiy, Oktyabr'skiy and Tukayevskiy Rayons -- to create a feed supply for one and a half years. To grow and harvest crops is just one half of the work. The other -- to properly protect it. A rich stand of grass and one which surpasses the earlier computations for feed procurements has increased the requirements for reliable storehouses. A "roof" is required for feed, especially for haylage, silage. Over the past 2 years, storehouses have been built in the republic for the storing of 1.8 million tons of haylage and silage. This year, storehouse capacities for 800,000 more tons must be placed in operation. The Kamgesenergostroy Administration is erecting 59 installations, Glavtatstroy -- 45 and Tatsel'stroy -- 95. The work is progressing and yet the specific situation requires a redoubling of efforts. The rates must be accelerated and there must be silage and haylage storage facilities for 5.4 million tons -- this latter requirement is being satisfied at the kolkhozes and sovkhozes by only 65 percent. The green harvest will not wait! /by M. Zaripov/ /Excerpts/ /Moscow SOVETSKAYA ROSSIYA in Russian 6 Jul 82 p 1/ 7026

HIGH WORK TEMPO--At the present time, 3,000 tons of hay, approximately 2,000 tons of grass meal and almost 4,000 tons of haylage are being procured in the Altay Kray. A high work tempo in the competition is being maintained in Blagoveshchenskiy, Biyskiy, Yegor'yevskiy, Mikhaylovskiy and Petropavlovskiy Rayons. /Excerpt/ /Moscow IZVESTIYA in Russian 24 Jun 82 p 1/ 7026

FEED PROCUREMENT COMPETITION--Orenburg--The farms in Orenburgskaya Oblast are devoting a great amount of effort towards ensuring that the public herd is provided with succulent and coarse feed for the winter. Moreover, the farms in Akbulakskiy, Novoorskiy, Perevolotskiy, Adamovskiy and Totskiy Rayons are also carrying out a great amount of work in connection with the laying in of haylage. Hay harvesting brigades and teams have been created and the professional organizations have launched an extensive competition among workers engaged in feed procurement work. Efficient work organization and an effective competition -- these are the components for achieving success in the green harvest. /by P. Afanas'yev/ /Excerpts/ /Moscow TRUD in Russian 5 Aug 82 p 1/ 7026

ASSISTANCE FROM CITY-DWELLERS--Khabarovsk Kray--The workers in Khabarovsk Kray fulfilled their task for procuring hay ahead of schedule. Approximately 254,000 tons were placed in storage. In the successful carrying out of this important agricultural campaign, a decisive factor was the assistance received from the

collectives of enterprises and organizations. An efficient system for participation by city-dwellers in solving the feed problem has been developed and is being employed throughout the kray. The members of stable supportive brigades have mastered the secondary profession of feed procurement specialist and they themselves are thoroughly preparing the equipment for the hay harvesting work and repairing it out on the meadows. The plant workers are serving as excellent examples of highly productive work, based upon maximum mechanization of all of the labor-consuming processes concerned with the procurement of feed. /by G. Gorlanova/ /Excerpt/ /Moscow TRUD in Russian 5 Aug 82 p 1/ 7026

SPECIALIZED FARMS--Uzbekistan, Turkmenia, Tajikistan and Azerbaijan are close to completing their tasks for laying in such a valuable feed as haylage. The fields which become available here are prepared without delay for secondary sowings. This method is being employed extensively by the farmers in Turkmenia. The harvesting subunits are followed immediately by the soil cultivation units and these in turn are followed by the sowing machines, which place the corn seed in the soil. In addition to an abundance of fodder, it will produce ripe ears. The crops in many areas are profiting from good climatic conditions. Thus, special farms will be organized in Uzbekistan, Kazakhstan, Kirghizia and in the southern part of Russia and the Ukraine for the production of alfalfa seed, which is still in short supply, for delivery to the all-union fund. /Excerpts/ /Moscow IZVESTIYA in Russian 24 Jun 82 p 1/ 7026

HARVEST PRODUCTION LINE--Osh, 17 Jul--The farmers in the southern part of the republic have commenced their mass harvesting of corn and silage procurement work. More than 100 harvesting-transport detachments have been formed on farms in Osh Oblast. All of the subunits of the harvest production line are interacting in an efficient manner and the team-watch organization of labor for combine operators has been introduced into operations on an extensive scale. An average of more than 400 quintals of succulent bulk is being obtained by the field crop growers per hectare of irrigated arable land and on leading farms -- up to 500 quintals.

[Text] [Moscow SEL'SKAYA ZHIZN' 18 Jul 82 p 1] 7026

DROUGHT RESULTS DESCRIBED--This year's drought did not overlook Kalininskiy Rayon: the winter wheat was blighted prematurely and the barley on non-irrigated land failed to reach the desired growth. The intense heat scorched the sowings of perennial grasses on irrigated lands. The cropping power of the first alfalfa cutting turned out to be lower than that of last year. With regard to the laying in of haylage, the rayon's farms have the lowest indicators for the entire Chu River Valley. The plan was fulfilled by only 27 percent -- one third of the figure for this same period last year. Only 3 percent of the planned amount of hay from natural and sown grasses has been placed in storage. And last year's level for the production of artificially dried grass meal and grass chop has been covered by only 58 percent. The principal hope for raising the cropping power of corn, fodder beets, pumpkins, marrow squash, alfalfa and subsequent cuttings lies in expanding the areas for post-harvest sowings. But there is another reserve for supplementing the feed supplies. Here we have in mind the timely harvesting and observance of the progressive technology for procuring hay, haylage and vitamin grass meal, since this will serve to ensure that highly nutritious feed is obtained. But it bears mentioning that on a number of farms in our rayon full use is not

being made of this reserve for livestock production purposes. As a result of failing to observe the feed procurement technology, many valuable nutrients are being lose, especially protein, carotene and vitamins. At the same time, the nutritional properties are declining. Moreover, the feed is being taken over by mould, fungi and rot, all of which can have an even more fatal effect on the livestock than butyric acid, which last year predominated in the prepared haylage. Finally, we would like to ask why we have not as yet heard from the people's controllers? If not them, then who is responsible for monitoring observance of the feed preparation technology? Yes and the rayon committee should have increased its exactingness with regard to the leaders and specialists attached to the farms and the raysel'khozupravleniye. The feed procurement experts and specialists and the leaders of farms, raysel'khozupravleniye, the rayon executive committee and the people's control committee must be held responsible for the quality of the feed. /by D.K. Zvyagintsev, chairman of the Kalininskiy Rayon Executive Committee; A.S. Povolotskaya, chairman of the Kalininskiy Rayon People's Control Committee and D.T. Bakeyev, chief of the Kalininskiy Rayon Agricultural Administration/ /Excerpts/ /Frunze SOVETSKAYA KIRGIZIYA in Russian 18 Jun 82 p 1/ 7026

A RELIABLE AID--Osh, 8 Jul--On farms throughout the oblast, pumpkins are considered to be a fine source for obtaining additional feed. They are grown along the sides of roads and irrigation ditches, on the edges of fields and on boundary strips. During dry years, when non-irrigated haying and pasture lands suffer from drought conditions, pumpkins aid in decreasing the deficit in succulent feed. Special attention is given to the cultivation of pumpkins at the Kolkhoz imeni Kalinin in Frunzenskiy Rayon. Nine hundred quintals per hectare were obtained here last year. /by I. Masaulov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 9 Jul 82 p 1/ 7026

LOW QUALITY HAYLAGE--Kirghiz SSR--The severe heat has damaged the forage crops on non-irrigated land. Yes and even on irrigated land, owing to a scarcity of water, the first cutting was not good in all areas. Under such conditions, importance is attached to utilizing all feed reserves. The kolkhozes and sovkhozes of Kirghizia have taken into account the forage resources and have resolved to harvest grass from each patch of land: from the sides of roads and irrigation ditches, to expand their post-harvest sowings and to plant marrow squash and food roots. At the present time, as never before, importance is being attached to protecting everything that is grown out on the fields. In one of the large livestock production rayons in the Chu River Valley -- Kalininskiy Rayon -- the technology for the laying in of haylage is being violated. Nor is this the first year that this has been done. Last season the quality of more than 2,000 tons of haylage was checked at the Kolkhoz imeni Il'ich and the entire amount turned out to be of third grade quality. References were made at the kolkhoz to last year's rainy weather. And this year the heat is being blamed as the reason for the low quality haylage; they say that the grass dried out too rapidly and to an excessive degree. Not the weather, but rather the inability to organize the work in an efficient manner -- this is the chief reason why a considerable portion of the haylage procured this year turned out to be of low quality. /by I. Masaulov/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 82 p 1/ 7026

INCREASED FEED PROCUREMENTS--Gur'yev--This year the oblast's farms irrigated more than 120,000 hectares of estuary land and they expanded by 25 percent their area of irrigated alfalfa tracts. As a result, the plans call for considerably more feed to be procured this year than was the case last year and better quality feed as well. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 9 Jul 82 p 1/ 7026

CSO: 1824/479

EFFECTIVENESS OF GREEN CHOP AS FEED FOR HOGS REVIEWED

Moscow SVINOVODSTVO in Russian No 5, May 82 pp 2-3

/Article: "Green Feed for Hogs"/

/Text/ It is known that weight increases and the preservation and productivity of livestock are dependent upon good organization in the feeding of fodder. This fact must not be overlooked and more complete use must be made of the opportunities afforded by the summer period when there is an abundance of succulent feed. Alfalfa, clover, sainfoin, annual grass-legume mixtures and other grasses promote the development of high quality pork. Thus one of the chief conditions for successfully carrying out the tasks of the second year of the 11th Five-Year Plan is that of ensuring that the livestock is supplied with high quality feed. The rations for hogs must be composed in a manner so as to obtain the highest productivity in the animals with the least consumption of feed. In the process, it must always be borne in mind that feed consumption constitutes roughly 70-75 percent of all expenses for the production of a unit of output.

Green plants, especially leguminous ones and also feed mixtures made from them represent a very important source for obtaining nutrients and vitamins. Scientific studies and many years of practical experience have established the fact that the rations of pregnant sows less than 2 years of age must include fodder -- from 25 to 40 percent of the overall nutritional value of the ration (depending upon the month of pregnancy) and for sows 2 years or older in age -- 30-50 percent. The ration for suckling sows must include 25-30 percent of the overall nutritional value of green succulent grass.

Special sowings of forage crops are employed extensively at many kolkhozes and sovkhozes for the purpose of ensuring that the hogs are supplied with green and succulent feed during the summer period. The best possible programs for the green production line for hogs are developed based upon the natural and climatic conditions for the various zones. These programs call for the sowing of various forage crops depending upon the local conditions. As a rule, the following crops are sown for the purpose of feeding to the hogs: Jerusalem artichokes, winter rye plus winter vetch, clover or alfalfa, annual grass-legume mixtures, fodder lupine, corn, sorghum, field kale, fodder melon crops and so forth. The chief tasks of the farm specialists are selecting the most suitable types and varieties of forage crops for the particular soil-climatic conditions and the timely harvesting and continuous deliveries of succulent feed for the hogs throughout the entire season. The green production line system must be utilized and the grazing of the animals

organized at times when the plants are producing the greatest quantities of high quality fodder. It must be borne in mind that the yield and especially the nutritional value of the feed are dependent to a considerable degree upon timely mowing of the fodder. For example, the crude protein content (in percent of absolutely dry substance) in clover and alfalfa, by stages of growth, is characterized by the following data: prior to budding -- 20 and during the blossoming phase -- 11-12.

Intermediate sowings represent a considerable reserve for increasing the production of green and succulent feed. In regions of adequate moisture and on irrigated arid lands, these sowings make it possible to obtain 2-3 yields of fodder annually from the same area. By employing post-harvest sowings, farms are able to increase their production of diverse types of high quality feed without having to use additional areas. This is why post-harvest sowings of forage crops, under conditions involving the mechanization of and the use of chemical processes in agriculture and the use of irrigation, represent a great reserve for increasing the production of green, succulent and coarse feed.

During the summer the hogs on many farms, especially the brood stock with their offspring and replacement young stock, are maintained in summer camps. Great opportunities are available at these camps for making maximum use of green feed and also for grazing the livestock. Thus great importance is attached to determining in advance and assigning grazing tracts to each farm for the entire camp-pasture season for the sows, based upon the size of the crop rotation plan adopted at each farm and the group of forage crops included in it.

In recent years, many farms have begun to use green and succulent feed in their hog rations. It is fed to the animals in mown and milled form and in many areas the grazing of hogs is common practice. Green feed is a rich source for biologically rich protein and vitamins, among which first place is occupied by provitamin A -- carotene. Experience has shown that green feed and pastures are required in order to raise strong young pigs and have healthy pedigree livsetock capable of reproducing healthy offspring. Hogs readily consume non-coarse green feed. Winter rye should ideally be used in many regions of the country in the capacity of early green feed for hogs. Clover is the best pasture crop at the beginning of summer. In the rations of pedigree animals, up to 75 percent of the concentrates (grain) can be replaced by pasture clover and in the feed mixtures for fattened hogs -- up to 25 percent.

Alfalfa is also good feed for hogs. In particular, it is employed extensively in arid regions. As a rule, grazing commences when the grass stand reaches a height of 10-20 centimeters and terminates during the blossoming phase.

Vetch, vetch plus oats and vetch plus barley are valuable in view of the fact that they can endure up to 4 sowing periods. As a rule, the mowing of these crops commences when the plants reach a height of 20-25 centimeters and it ends at the commencement of the heading of the ears.

On farms where the green production line is employed, the changes in the chemical composition of the plants by growing phases must be taken into account when determining the periods for the use of the green feed. This is necessary in order to ensure that the animals are supplied with rich feed (see Table 1).

TABLE 1

Crop	Growing Stage During Harvesting	Content in % of Dry Substance			Protein Content (mg/kg)
		Protein	Cellulose	Ash	
Red clover	Budding	22.2	21.8	7.87	210.8
	Commencement of blossoming	20.6	36.3	6.54	178.0
	Formation of beans	17.26	36.9	4.95	102.1
Alfalfa	Stem growth	22.12	19.37	8.64	222.4
	Budding	17.12	25.15	7.54	188.0
	Commencement of blossoming	15.75	24.6	6.87	112.1
	Formation of beans	13.18	31.41	4.9	90.3
Spring vetch	Commencement of budding	22.2	18.8	12.6	282.0
	Blossoming	21.18	21.64	10.07	157.0
	Formation of beans	19.31	23.0	8.78	117.5
Fodder lupine	Blossoming	15.81	17.74	-	130.0
	Formation of beans	15.87	19.97	-	70.0

Rich feeding for hogs is achieved through the use of specialized mixed feeds and premixes necessarily combined with green feeds. Scientists at the Moldavian Scientific Research Institute of Animal Husbandry and Veterinary Science have established the optimum requirements for succulent and green feeds, grass meal and concentrates for hogs of various sex and age groups (see Table 2).

Green and succulent feed plays a considerable role in the feeding of hogs. Thus their use in the rations of animals produces a great economic effect. It must be remembered that a hog is an omniverous animal and the rich feeding of a hog ensures a good return from the feed in terms of weight increases. When properly tended and fed, a hog is a storehouse of meat and lard.

As is known, the animals obtain green feed either by means of pasturing or by having mown grasses delivered to the farms. In the latter case, importance is attached to ensuring that the growing areas are located as close as possible to the areas where the fodder is to be consumed. This is required owing to the fact that the transporting of green feed is expensive and adversely affects the output production costs. For example, at the Druzhba Kolkhoz in Lovov Oblast, an increase in the distance for transporting fodder to the farm of from 1.7 to 4.6 kilometers raised the motor transport expenses by almost threefold and tractor expenses by a factor of 4.5.

In recent years, in certain regions of the country, many farms have been combining the industrial management of hog raising operations with the traditional method of maintaining young stock in summer camps. The leaders and specialists view this as an important reserve for expanding the production of hog raising products. Thus, some time ago, at the Kolkhoa imeni Lenin in the Mari ASSR, small sheds for 150 sows equipped with stalls and feeding troughs were built in the vicinity of the

TABLE 2

Sex and age groups of animals	Annual requirement per head, (quintals of feed units	Including in % of nutritional value				
		Concentrates		Succulent feed	Green feed	Grass meal
		Total	Including feed of animal origin			
Boar-sires	17.9	85-80	5-8	2-4	2-4	3-5
Sows:						
Unmated	14.6	85-90	2-4	3-5	3-5	5-6
Suckling	24.8	94-91	5-8	1-2	1-2	4-5
First period of pregnancy	13.1	85-90	2-4	3-5	3-5	5-6
Second period of pregnancy	18.3	85-90	2-4	3-5	3-5	5-6

kolkhoz's hog complex. At these camps, using cheap green and succulent feed, the kolkhoz raised thousands of young pigs, fattened them and sold them to the state. As a result of having organized such summer camps, the planned capability of the hog complex was increased by 64 percent.

The combining of industrial hog raising operations with the use of summer camps and strengthening of the internal feed base are bringing about considerable growth in the production of pork and, it follows, in the economic effectiveness of the branch.

Great experience has been accumulated at the Poltavskiy Sovkhoz in Stavropol'skiy Kray in the use of alfalfa in hog rations. It is used from the beginning of May until late October. During this period of time, 5-6 cuttings are obtained for hay and 6-7 for green feed. The inclusion in the hog ration of 25-30 percent alfalfa fodder enables a farm to reduce considerably its expenditures of concentrated feed. The following experiment was carried out at the sovkhoz for the purpose of checking upon the effectiveness of including alfalfa fodder in the hog ration: two groups of 5 month old gilts, each numbering 200 head, were established. The first group was fed only concentrates and the second -- concentrates and alfalfa fodder. The experiment lasted for 2 months. It was discovered that the inclusion of alfalfa fodder in the feed mixture made it possible, within 60 days, to reduce the consumption of concentrates by 78 kilograms and to obtain 2.6 additional kilograms of weight increase in live bulk in each animal.

A specialist plays a great role in organizing and carrying out the summer maintenance of hogs. Indeed, in addition to being a production organizer and technologist, a farm specialist is also a teacher for a collective. A modern specialist can carry out his production operations most effectively only if he possesses thorough knowledge, is familiar with the economics of the work, is able to employ the results of a particular economic measure in an intelligent manner and is an active proponent of all new developments advanced by science and leading practice.

All leaders and specialists and all hog farming and feed production workers are obligated to make maximum use of all opportunities available during the summer period for increasing the production of pork.

7026
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AGRO-ECONOMICS AND ORGANIZATION

FOOD PROGRAM IMPLEMENTATION IN LATVIAN SSR

Riga KOMMUNIST SOVETSKOY LATVII in Russian No 5, May 82 pp 25-33

/Article by M. Raman, chairman of Gosplan for the Latvian SSR: "The Republic's Food Program"/

/Text/ An important component part of the extensive program for further improving the welfare of our Soviet people, as outlined during the 26th CPSU Congress, is that of improving the supply of food goods for the population. In the interest of achieving a radical solution for this problem, the congress considered it necessary to develop a special food program based upon further development of agricultural production. A component part of the all-union program will be an all-round food program for the republic. It must ensure a considerable increase in the production of agricultural products and it must bind agriculture more closely to those branches which provide services for agriculture and with the transporting, storage, processing and sale of the products. A chief goal of the program is that of solving as rapidly as possible the task of continuously supplying the population with food products in conformity with the required norms.

It bears mentioning that definite experience has been accumulated in the republic during the past few years in special purpose program planning. Naturally, it was employed for composing the draft all-round food program. Its development involved the participation of all of the ministries and departments constituting the agro-industrial complex, leading scientists, ministerial specialists and also specialists attached to departments and the republic's Gosplan. During the course of developing the program, a great amount of analytical work was carried out aimed at uncovering the bottlenecks and reserves for further agricultural development.

The analysis carried out on the status of agriculture revealed that the rates of development for agricultural production in our republic have slowed down since 1978, mainly owing to unfavorable weather conditions. The plan for feed procurements has not been fulfilled. A sharp deterioration has taken place in the quality of the soil -- the nutrient content in the soil has decreased. As a result, livestock productivity has fallen. Further and considerable differentiation in the operational results of individual farms is being observed. Overall, during the past five-year plan the republic failed to fulfill its plan for delivering milk and meat to the state.

At the same time, the extensive program outlined during the 25th CPSU Congress for improving the welfare of our people has clearly been carried out. The income of

the Soviet people has increased. In 1980 the average wage for manual and office workers was 172 rubles, that is, it had increased by 36 rubles compared to 1975. The average monthly wage for kolkhoz members reached 153 rubles, that is, an increase of 34 rubles. In this regard, a natural increase took place in the demand for valuable livestock products.

The food program includes an entire complex of mutually associated measures which fully ensure the fulfillment of the tasks established in the "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990" for the Latvian SSR. During the 11th Five-Year Plan, the republic's gross agricultural output volume is expected to increase by 12-14 percent, meat production in live weight -- by 13 percent, raising such production to 453,000 tons in 1985 and milk -- by 4 percent, with milk production reaching 1.83 million tons.

In the process, the average annual production of grain must be raised to 2 million tons, or an increase of 49 percent above the figure for the 10th Five-Year Plan, potatoes -- to 1.7 million tons, 23 percent more than the production volume for potatoes during the past five-year plan and vegetables -- to 221,000 tons, or an increase in the average annual yield of 16 percent.

Guided by these chief tasks of the 11th Five-Year Plan, the all-round food program, through the carrying out of measures outlined in the mutually related sub-programs for the principal operations -- feed production, infrastructure, agricultural services, processing and sales -- and the sub-programs which ensure these operations, must achieve solutions for the following principal tasks: by means of all-round mechanization, land reclamation, improvements in seed production and agricultural practices and the use of chemical processes, create the conditions required for stable management of agricultural production, reduce to a minimum the effects of weather conditions on the results of agricultural production; raise the economic potential of backward farms at a more rapid tempo, improve the social and production infrastructure of these farms and rayons on the whole, ensure the assignment of personnel to agriculture and especially to backward farms; achieve improvements in the all-round servicing of the republic's kolkhozes and sovkhozes by enterprises of Goskomsel'khoztekhnika and other organizations, for the purpose of raising the efficiency and profitability of agricultural production; ensure the production of high quality food products in the required assortment and their protection and proper delivery to the consumers.

In addition to measures which must ensure fulfillment of the assigned tasks, the all-round food program must also specifically define who, where, when and how the planned results are to be achieved. Leading coordinators and executive agents have been assigned for each of the sub-programs and each measure. They are responsible for the carrying out of the sub-programs on the whole and each program measure separately. These coordinators and executive agents include ministries, departments, rayon agroindustrial associations, kolkhozes, sovkhozes, enterprises and associations.

Thus the republic food program, in terms of its own program measures, encompasses three chief levels of control -- republic, rayon and the level of agricultural and industrial enterprises. Within the structure for the republic program, food programs for each rayon, kolkhoz and sovkhoz have been developed. As a rule, only the final and intermediate results and resource support are defined in the programs.

The farm and enterprise specialists and leaders are allowed complete freedom in selecting one or the other, depending upon the local conditions and the technological path for achieving the assigned goals.

The all-round program differs from a plan in the sense that all of the measures included in it are aimed at achieving a single goal, with all of the measures being of an interdepartmental or multi-branch nature. It is an organic component part of the five-year plan for the economic and social development of the Latvian SSR and it supplements and provides greater detail for such a plan.

The republic food program presupposes a very broad complex of mutually related measures for providing livestock production with full-value feed, the application of optimum amounts of fertilizer to the soil and the creation of a high quality seed fund, the introduction into operations on all farms of progressive feed procurement and storage technologies and the creation of a suitable logistical base for this purpose, development of the mixed feed industry, the production of the components required for balanced feed and the uncovering and organization of efficient use of food scraps in livestock production.

During the 11th Five-Year Plan and compared to the 10th Five-Year Plan, this will require an increase by a factor of 1.7 in the capital investments aimed at developing field crop husbandry and feed production in the Ministry of Agriculture for the Latvian SSR alone. In this regard, a requirement will exist for building haylage and silage storehouses having an overall capacity of 126,000 tons, for grain -- 371,000 tons, barns for hay -- 31,000 tons, potato storehouses for 209,000 tons and other installations. In 1985, agriculture will be supplied with 700,000 more tons of litter peat than was the case in 1980.

Mineral fertilizer deliveries to the farms will increase by 23 percent. By the end of the 11th Five-Year Plan, the plans call for the placing in operation of new capabilities for producing 400,000 tons of lime materials annually within the system of the Ministry of Construction Materials Industry for the Latvian SSR.

It can be stated that the feed production sub-program is the most important of all of the sub-programs of the food program. The principal problems associated with further increasing the production of feed were analyzed during the March Plenum of the Central Committee of the Communist Party of Latvia. The plenum defined the tasks of the party organization of the republic with regard to further strengthening the feed base -- the foundation for further development of livestock production.

It was noted during the plenum that a great amount of work was carried out during the years of the 10th Five-Year Plan in connection with strengthening the logistical base of feed production.

Nevertheless, during the wintering period on the whole, many farms and individual rayons are tolerating reductions in the productivity of their livestock owing to an overall shortage of feed and especially internally produced concentrated feed. As is known, in order to carry out the wintering program successfully, a farm must have 16-17 quintals of feed units for each standard head of large-horned cattle. Such an amount was procured for the winter on the republic's farms for 1970 and 1971. However, in recent years there has been considerably less feed on the farms (taking into account the feed obtained from state resources): in 1979 -- 12, in

1980 -- 11.6 and in 1981 -- 12.2 quintals of feed units per standard head of large-horned cattle. Owing to non-fulfillment of the plans for procuring feed and its low quality, a majority of the republic's farms were unable to obtain the necessary increase in livestock production output.

Taking into account the planned growth in the numbers of livestock and poultry and the required increase in the production of meat, milk and other livestock products, at all categories of farms by the end of the five-year plan, it will be necessary to ensure the production of more than 6 million tons of feed units, that is, an increase of 46 percent in the volume of internally produced feed compared to 1980.

The principal measures, the realization of which must produce an increase in the cropping power of the principal field crops and thus in the overall production volume for coarse, succulent and concentrated feeds, are the creation of the required logistical base for feed production; further development of specialization and concentration in the production of field crop husbandry products and improvements in seed production; the introduction into operations of leading and promising technologies, machine systems and highly productive varieties of agricultural crops; an expansion in the production of protein and vitamin additives using the industrial method and also industrial waste products and sources of non-agricultural raw materials deemed suitable for these purposes.

Grain is and will continue to be a most important forage crop for us. The computations of specialists have shown that in order to meet the requirements of livestock production for concentrated feed, a stable gross production of not less than 2 million tons of grain annually is required. During the 11th Five-Year Plan the republic's farms do not have adequate opportunities at their disposal for expanding considerably their sowing areas for grain crops. The principal increase in grain production must come about as a result of steady growth in cropping power and a sharp reduction in crop losses during harvesting operations. A more active search must be undertaken for grain crop varieties which are highly productive and disease and lodging resistant, early ripening and which meet the requirements for intensive farming.

Perennial and annual grasses, cultivated pastures and haying lands, which occupy 46 percent of the agricultural lands, play an important role with regard to supplying feed for the livestock. However, a substantial increase is required in the amounts of grass and hay being obtained from these lands; the quantities being obtained at present are still comparatively low. Serious attention must also be given to raising the productivity of the cultivated pastures, which furnish rich and cheap fodder. An average of not less than 35-40 quintals of perennial grass must be obtained per hectare from the first cutting, improved meadows -- not less than 27-30 quintals of hay and a hectare of cultivated pasture must furnish 3,500-4,000 feed units of green feed.

An especially vital task is that of achieving the required amount of feed protein in the livestock ration. A deficit of protein lowers the effectiveness of use of feed by 30-35 percent and raises its consumption and production cost. The true path for increasing the production of plant protein lies in expanding the sowings considerably and raising the cropping power of those crops rich in protein. A considerable expansion must take place in the sowings of clover, alfalfa, lupine, peas, beans, vetch and other pulse crops; at the same time, this will aid in solving the task of raising the fertility of the land.

Providing the livestock with a rich ration will make it possible to increase the production of livestock products. This will be achieved mainly by raising the productivity of the herd. In this regard, great importance is also attached to selection and breeding work. Breeding work must be carried out more extensively and thoroughly with all types of livestock, with new strains being created and old ones improved. The republic has procured Black-variegated and Anglerskiy cattle, which have proven to have a high productivity under our conditions. However the work of reproducing and raising this cattle is still proceeding at a slow tempo.

A strong reserve for increasing the production of meat is that of raising the delivery weight of the large-horned cattle while reducing the duration of the fattening periods. This year the weight must be raised to an average of 420 kilograms and by 1985 -- to 450 kilograms.

The all-round food program also calls for a number of measures aimed at improving the use of reclaimed lands and carrying out soil improvement measures aimed at achieving systematic and planned increases in the fertility of the soil. The abundant amount of precipitation experienced in recent years has shown that the capacity of many water intakes is inadequate and thus a portion of the drained lands is not being utilized in an efficient manner. The Ministry of Land Reclamation and Water Management must undertake extremely urgent measures aimed at eliminating these defects, raising the quality of the work and it must carry out the necessary modernization of the water intake installations so as to ensure that surplus moisture is withdrawn from the fields. In the interest of raising the quality of the land reclamation systems and developing the more complicated tracts of land, the annual volume of land reclamation work has been lowered to 50,000 hectares.

Measures aimed at radically improving the reclamation of land and development of agrochemical services for agriculture are concentrated in the Agricultural Services Sub-program. Here great tasks are entrusted to the Latvsel'khozkhimiya Association. By 1985 and compared to 1980, it must increase the work volumes at kolkhozes and sovkhozes with regard to applications of mineral fertilizers by 56 percent, chemical protection for plants -- by 62 percent and applications of organic fertilizers -- by 17 percent.

The plans also call for the further mechanization and electrification of livestock production processes. For the time being, completely mechanized facilities are available in the republic for 21 percent of the large-horned cattle, 54 percent of the hogs and 45 percent of the poultry.

Measures will also be undertaken to expand and raise the level of repair work and technical servicing of agricultural machines and other equipment, especially in connection with complete repairs being carried out on powerful tractors, motor vehicles and grain harvesting combines, the creation in all regions of stations for the technical servicing of motor vehicles and the introduction of guaranteed support for the farms in the form of spare parts.

In 1985 the plans call for Goskomsel'khoztekhnika to carry out 92 percent of the repair work on tractors, 80 percent -- motor vehicles, 85 percent -- self-propelled agricultural machines and also technical servicing of 95 percent of the powerful tractors, 74 percent -- self-propelled agricultural machines and 90 percent -- the equipment of livestock farms.

The "Infrastructure" Sub-program calls for measures aimed at accelerating improvements in the economies of backward farms where, for various reasons, the production conditions are worse than the average for the republic. The main portion of the economically weak kolkhozes and sovkhozes are located in 13 of the republic's 26 rayons. In these rayons the economic value of the land is lower, the proportion of drained lands is less, there is considerably less fixed productive capital per 100 hectares of agricultural land, construction is being carried out at slower rates and thus the availability of comfortable housing and other cultural-domestic facilities is also lower than in the other rayons of the republic.

During the period from 1970 to 1980, the number of workers at kolkhozes and sovkhozes in the economically weaker kolkhozes and sovkhozes decreased by almost 20 percent and in individual rayons -- by an even greater percentage. The farms in these rayons suffer from a shortage of machine operators, experienced specialists and production leaders. The economically weak farms do not have their own working capital and thus are forced to use excessively large amounts of bank credit.

In 1980 the Central Committee of the Communist Party of Latvia and the republic's Council of Ministers adopted a special decree for the purpose of achieving purposeful and accelerated improvements in the economies of backward farms. This decree will be carried out based upon detailed measures set forth in the "Infrastructure" Sub-program. This sub-program calls for the development of housing construction and the construction of cultural-domestic installations, in the interest of retaining personnel on the backward farms; the construction of production installations, without which it would be impossible to achieve the required degree of production development; the carrying out of land drainage work; an increase in the deliveries of mineral fertilizers and bedding peat, which will make it possible in the near future to create normal conditions for increasing the production of farming products and particularly feed; supplying the machine-tractor pool for backward farms with highly productive equipment and thus reducing the manpower requirements; reducing the period for training the required number of machine operator personnel; reinforcing the economically backward farms by providing them with cadres of leaders and specialists and improving their skills; creating a production infrastructure in the rayons which will ensure further and normal development for all farms in a rayon.

In carrying out the above sub-program, the following facilities will be built: 6,000 apartments, or an average of 50 apartments at each economically backward farm, children's institutes for 4,670 billets, 19 club-offices, 83 domestic services points, 46 dining halls and stores, intra-farm roads and also many projects of a production nature. For carrying out the planned measures and in addition to the capital investments allocated by the state for agricultural development, 57 million rubles worth of capital investments from other branches will be utilized during the 11th Five-Year Plan for these purposes.

Almost all of the measures of this sub-program are associated with construction. Thus a construction headquarters was established for the rural areas to serve as a leading coordinator for this sub-program. This headquarters was created under the republic's Council of Ministers and it is staffed with highly skilled specialists for all stages of capital construction. The task of the headquarters -- to coordinate and control the implementation of this sub-program and, when necessary, to carry out the efficient distribution of material resources within the framework

of the sub-program and inform the Central Coordinating Committee -- the highest organ of control for implementation of the food program -- regarding any problem situations that may arise.

When discussing other sub-programs, special attention should be given to a sub-program for the introduction of scientific achievements and leading experience, the measures of which encompass the principal branches of agricultural production -- farming and livestock production. In addition to such measures as the introduction of new agricultural crop varieties and new technologies for cultivating them, the plans call for the production of protein feeds for achieving a balance in the feed rations.

Thus an inter-farm complex for obtaining plant and microbe protein from the fodder of plant raw materials is already under construction at the Uzvara Kolkhoz in Bauskiy Rayon. The technology was developed at the Institute of Microbiology of the Academy of Sciences for the Latvian SSR. In Valmiyerskiy Rayon, based upon a recommendation by the Institute of Wood Chemistry of the Academy of Sciences for the Latvian SSR, the Zilayskalns enterprise is under construction and eventually will produce molasses and nutrient yeasts made from slightly rotted peat.

Within the framework of this sub-program, the plans also call for measures aimed at introducing technologies which will guarantee high yields: sugar beets -- 350 quintals, potatoes -- 200 quintals per hectare, average annual milk yields -- 4,000 kilograms or more from each cow, average daily weight increases in large-horned cattle -- 800 grams and in hogs -- 600 grams.

The "Processing and Sales" Sub-program is directed towards increasing the production of high quality food products in the required assortment and preserving and delivering them to the consumer. It defines the specific tasks for those ministries and departments engaged in the processing of agricultural products and the sale of food products. Measures will be undertaken to satisfy the requirements of the republic's population for high quality and biologically valuable products, particularly baked goods, to ensure the timely and high quality processing of livestock products and the production of high quality meat and dairy products in the variety and amounts required for satisfying the requirements of the republic's population and to increase the production of fish products. At all stages in the processing of agricultural products and delivering them to the consumer, a great amount of attention will be given to the thrifty use of raw materials and combating losses.

In particular, when carrying out this sub-program construction work must be either completed or started on the following facilities: new buildings of the Aldaris Production Association, the Uzvara Confectionery Factory, the Rezekne Grain Combine, dairy combines in Riga and Daugavpils and a number of other projects.

Compared to 1980, the production of rich baked goods in 1985 will increase by 14 percent, animal oil -- by 22 percent, meat -- by 19 percent and Siberian meat dumplings and quenelle -- by a factor of 1.8. The plans call for an increase by a factor of 1.7 in the production of non-alcoholic beverages and in starch -- by a factor of 3.1. This will make it possible to fully satisfy the requirements for these products. The production of fish products will be increased twofold.

The further development of agricultural production will depend to a decisive degree upon a successful solution being found for the personnel problem. The "Personnel" Sub-program is directed towards achieving this goal. It calls for an entire series of measures for providing personnel with higher and secondary skills in agronomy, mechanization, hydraulic engineering land reclamation, economic, construction and the motor vehicle economy; raising the skills of agricultural leaders and specialists; expanding the training of personnel in the mass professions at SPTU /agricultural-professional technical schools/ schools, in the training network of the republic's Minsel'khoz /Ministry of Agriculture/, in the training network of Goskomsel'khoz-tekhnika, at industrial enterprises and in rural general educational schools; raising the skills of personnel in the mass professions for feed production; organizing additional training for tractor and machine operators in the GPTU's /municipal professional technical schools/ of another profile.

A requirement exists during this present five-year plan for training more than 25,000 tractor, machine and combine operators, including 15,000 at professional-technical training institutes in the republic. More than 7,000 masters of machine milking will be trained and 1,300 machine operators for providing services for livestock farms and operators for the livestock complexes. Each year the detachment of personnel possessing higher and secondary skills for branches of the agroindustrial complex increases by more than 2,600 individuals throughout the republic. Improved labor productivity will provisionally release 75,000 workers and this will cover approximately 25 percent of the additional requirements for manual workers, engineering-technical workers and office workers.

For the 1981-1985 period on the whole, the plans call for the training of more than 183,000 manual and office workers for agriculture, that is, more than 90 percent of the additional requirements for such workers. Roughly 34,000 young workers in the mass agricultural professions will undergo training at professional-technical schools.

In addition, measures have been included in the "Personnel" Sub-program for reducing losses in working time and lowering personnel turnover by 1985 by no less than 50 percent compared to 1980, reducing the use of manual labor by no less than 6.5 percent of the number performing such work at the beginning of the five-year plan and introducing into operations on a more extensive scale the brigade forms for organization and wages based upon the final results.

However, it bears mentioning that the computations for additional agricultural personnel requirements for the feed procurement period reveal that despite all of the above-mentioned measures success was not achieved in fully satisfying the manpower requirements. In the future, city-dwellers must be attracted to participating in the feed procurement work. The organization of assistance for the rural areas from cities must be carried out on the basis of agreements, which at the present time are as a rule being drawn up between a farm and the supporting organizations for a period of 5 years. However, the supporting organizations are not always able to satisfy the additional requirements of a farm for, let us say, machine operators. Thus the "Personnel" Sub-program provides for the creation of a reserve of specialists in the mass agricultural professions in rayon cities and in the capital.

An important factor with regard to further reducing the personnel requirements for machine operators will be that of increasing the proportion of heavy duty tractors

in the machine-tractor pools of farms and making available larger quantities of the various types of towing implements, thus eliminating the shortages of such equipment which prevail at many kolkhozes and sovkhozes at the present time.

For improving the skills of agricultural leaders and specialists in addition to the traditional forms of training -- courses aimed at improving skills undertaken during the winter at the Latvian Agricultural Academy and conferences and seminars which call for a gradual expansion in the use of such a progressive form for improving skills as apprenticeship under experienced and knowledgeable leaders and specialists.

It bears emphasizing that the measures for all of the sub-programs are carried out using the resources allocated for the 11th Five-Year Plan in the plan for economic and social development. The food program, as noted quite properly by Comrade L.I. Brezhnev during jubilee celebrations in Georgia, is not just the fruit of abstract computations. It must be predicated upon the experience and potential possessed by the farms.

Each kolkhoz or sovkhoz and each enterprise or organization included in the republic's agroindustrial complex must determine the specific maximum contribution that it is able to make towards further improving agricultural production and it must display concern for ensuring that each ruble of capital investment and each additional ton of fertilizer is fully repaid in the form of growth in the productivity of the fields and farms. Those agricultural tasks called for in the five-year plan for the oblast must be viewed as being minimal in nature.

The measures called for in the republic's food program, which should be worked out in detail and thoroughly thought out, must become a stern and stable plan of action for achieving the general goal of the overall food program and for ensuring fulfillment of the tasks assigned to agriculture by the 26th CPSU Congress.

The implementation of the republic's food program will serve to fully satisfy the population's requirements for baked goods, fish and fish products, sugar, vegetable oil and potatoes, the consumption norms for which already conform to the rational consumption norms. The market fund for meat and meat products, in conformity with the computations of the food program, will amount to 145,000 tons in 1985 compared to 130,000 tons in 1975 and 118,500 tons in 1981, milk and dairy products -- 930,000 tons compared to 888,000 tons in 1975 and 763,000 tons in 1981. This will make it possible to come closer to the rational and physiologically necessary consumption norms for all types of food goods.

Certainly, it will not be easy to carry out all of the plans. But we can and must not only achieve the established indicators but in fact surpass them. It is our primary obligation, a matter of honor and conscience and a response to the appeal addressed to all party organizations and to all agricultural workers from the tribune of the 26th CPSU Congress to make livestock production a truly important front for work in the rural areas and to raise the production of all of the most important types of agricultural products, in the interest of completely satisfying the population's requirements for food goods and those of industry -- for agricultural raw materials.

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AGRO-ECONOMICS AND ORGANIZATION

EFFECTIVENESS OF EXPERIMENTAL GEORGIAN RAPO DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 10 Jul 82 p 2

/Article by D. Patiashvili, secretary of the Central Committee of the Communist Party of Georgia: "Path To An Association"/

/Text/ Modern agricultural production should not be viewed as being isolated not only from the sphere of services and the processing industry but also from the complicated processes concerned with economic, social and cultural development in the rural areas on the whole. Meanwhile the chief element of the overall administrative network -- the rayon level of production control -- has turned out to be weak and dissociated.

During jubilee celebrations held at Tbilisi in honor of the 60th anniversary of Soviet Georgia and the republic's communist party, L.I. Brezhnev stated: "The country is attentively monitoring some interesting experiments being carried out in the republic. I have in mind improvements in the control over the production and procurements of agricultural products, work incentives and cooperation between the public and private farming sectors."

The manner in which the experiment in improving the rayon element of control over agricultural production and other branches of the agroindustrial complex developed deserves to be mentioned once again.

In 1974 the decision was made -- for the very first time in our republic -- to create an agricultural production association in Abashskiy Rayon. This association included only three subunits: a rayon agricultural administration, a rayon association of Gruzgoskomsel'khoztekhnika and a rayon administration of the republic's Ministry of Land Reclamation and Water Management. With the passage of time, the number of enterprises and organizations in the association increased.

The association coordinates the activities of all of the participants regardless of their departmental subordination and it implements a unified approach for carrying out the program for the economic and social development of the rayon's agroindustrial complex. It implements the planning of production and the distribution of material and monetary resources. Centralized funds have been created for the development and strengthening of production, for socio-cultural measures and housing construction and for material incentives and mutual assistance. These funds were formed from the net income of kolkhozes, the profits of sovkhozes

and interfarm enterprises and payments by a tea factory, raysel'khoztekhnika, the administration for land reclamation and water management, a grain receiving point and two construction organizations.

Whereas during the initial years of the Abashskiy Rayon experiment, the operational results were evaluated only from the standpoint of increased agricultural output, subsequently the method for conducting such an evaluation was expanded. It began to include positive social changes, the scales and quality of construction, the introduction into production operations of achievements realized as a result of technical progress and so forth. In the process, a new form of control was tested in Abashskiy Rayon for the vitality of the organizational forms. The economic aspect and the possibility of employing internal economic levers for the purposeful all-round development of the rayon were scientifically checked after the experiment was shifted to Makharadzevskiy Rayon -- a rayon having a powerful and varied economy and a large number of highly profitable farms and enterprises.

When, following the organization of the rayon production agricultural association, the workers in Makharadzevskiy Rayon added more than 2 million rubles to the centralized funds, with no undue strain being placed upon the members of the association, even the strongest skeptics disappeared. But it was at this point that a new doubt surfaced: there were those who maintained that the money was lying unused at the farms and enterprises and is also showing no movement at the present time on the association's balance. Indeed, logistical support is required for investing these funds in the work and the limits, as is known, were not increased with the creation of the association. The latter judgement was completely fair, but a sphere of use was found for this money. The funds were directed to the narrowest sectors and this further restrained any expansion in the production of agricultural products. In Makharadzevskiy Rayon this turned out to be mainly enterprises of the processing industry, the production of construction materials and the feed base for livestock production.

During the years of the 10th Five-Year Plan alone, the procurements of tea leaves in Makharadzevskiy Rayon increased by more than 35,000 tons and the production capabilities of the tea factories increased by only 14,000. Such a disproportion precluded the possibility of raising the quality of the tea.

A small tea factory was created at a kolkhoz in the village of Shemokmeli. Did this not mean that funds obtained in agriculture were being used in another branch? Indeed, this small factory was created on the basis of the centralized funds. Thus the funds were being employed in this manner, but for the purpose of returning a profit. In the face of a shortage of tea processing capabilities, importance was attached to supplying the raw materials rapidly before they lost their high grade quality. This small factory, notwithstanding its size, accepted 12 tons of leaves daily and succeeded last year in processing 1,047 tons of raw materials during the season. And the partners shared the profits realized, taking into account the value of the fixed capital and the equipment expenditures. The work turned out to be so profitable that a decision was made to place a second small factory in operation at the kolkhoz. Today this small tea industry is making an appearance in other areas, including outside the rayon.

Under the former system of control, it was difficult to overcome the departmental dissociation and achieve proper distribution and redistribution of funds. Today this is being accomplished with almost no difficulties whatsoever.

Subsequently, as experience was accumulated and after important organizational and practical work had produced positive results, agricultural production associations were created in 13 more rayons and the 22 December 1981 Decree of the Central Committee of the Communist Party of Georgia and the Council of Ministers for the Georgian SSR called for the creation of new organs for controlling the APK /agroindustrial complex/ in all rayons of the republic.

It bears emphasizing that the centralized funds which are formed on the basis of payments from all of the enterprises -- members of the agroindustrial complex -- are directed by the rayob"yedineniye to the necessary branches, only upon their discretion and regardless of the proportional contributions of the particular enterprises. The possibility is not excluded of the association using its centralized funds for improving a branch, the representatives of which in the rayon by no means participated in the creation of these funds (this could occur for various reasons) and in this the association is accountable only to the rayon and republic organs.

Success was achieved in Tetritskaroyskiy Rayon in combining the efforts of all of the APK elements and their service organizations, which had been dissociated earlier. The periods were shortened, the quality of the capital and current repairs to the intrafarm irrigation canals was improved and irrigation was carried out during the best agrotechnical periods. And this is only natural: the rayon administration for land reclamation and water economy is now included in the association. For this same reason, improvements were carried out in the technical services provided for the rayon's farms by an enterprise of Gruzkomsel'khoztekhnika.

The new model for production control, which has been properly checked out, has become a part of the republic's economic life. The results, obtained as a result of the extensive introduction into operational practice of bold forms of moral and material incentives, efficient methods for the use of agricultural equipment and extensive cooperation between the public farms and private plots, against a background of flexible maneuvering of logistical, financial and labor resources, speak for themselves. In Abashskiy Rayon, for example, the average annual gross output volume for agriculture during the 10th Five-Year Plan, compared to the same indicators for the previous five-year period, increased by 57 percent, including for livestock production output -- by 81 percent. The average cropping power for the principal corn crop increased during this same period from 23 to 44 quintals.

During the 1979-1981 period, tea production in Makharadzevskiy Rayon increased by 27 percent, citrus fruit -- by 81 percent, meat procurements increased by more than twofold, milk -- by 32 percent and eggs -- by 80 percent.

As a result of economic improvements in the mentioned rayons, the wage level for field, plantation and farm workers was raised.

One of the chief positive results of the new system of control is stimulation of the creative initiative of the party committees and soviet and economic organs. Having taken into account the potential of the farms and making extensive use of scientific resources, the Gardabanskiy Rayon Party Committee, for example, developed a program for introducing scientific achievements, techniques and a progressive technology into operations on farms and at enterprises of the processing industry in the rayon. This rayon appears as a unique agrarian belt around Tbilisi and another of the republic's industrial centers -- Rustavi. Many points in the program have already been carried out.

In almost all areas, but especially in Lagodekhskiy Rayon, work has been planned and is already being carried out aimed at making maximum use of local resources for developing the construction base in the rural areas. It is sufficient to note that capabilities will be introduced into operations in this rayon, during this current five-year plan, for the annual production of up to 5 million bricks, 10,000 square meters of parquet floor and 200,000 standard tiles. Here, with no additional capital investments, the plans call for grain production to be increased during the five-year plan by a factor of 1.7, meat -- by 1.8 and coarse feed -- by a factor of 1.6.

The new system of control adopted in the republic conforms for the most part to that called for in the decisions handed down during the May Plenum of the CC CPSU, for introduction throughout the entire country. In this regard, a warning should be issued against making those mistakes which we were unable to avoid when introducing the new mechanism for management. In those areas where the work was formal in nature, no success was achieved in bringing about serious changes. Some rayon committees had to be corrected in order to realize a truly effective return from improvements in control. At the last plenum of the Central Committee of the Communist Party of Georgia it was mentioned that in those areas where the local party organs, instead of bringing about sharp improvements in the style and methods of management, display excessive concern for or substitute for the economic leaders, the establishment of associations takes place at a slower rate and at times no changes take place.

The efforts of the rural party organizations are presently being directed towards the efficient development of the agroindustrial complex, ensuring the introduction of a creative approach into all aspects of economic life and obtaining a maximum return from managerial decisions and from the introduction of new forms for organizing agricultural production and related branches.

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SOIL FERTILITY, MINERAL FERTILIZER EFFECTIVENESS IN CENTRAL ASIA

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 7, Jul 82 pp 10-16

/Article by Candidate of Agricultural Sciences I.K. Ryabchenko, Central Institute of Agrochemical Services for Agriculture and I.N. Chumachenko, VNIPTIKhIM: "Fertility of Irrigated Soils in Central Asia and the Economic Effectiveness of Mineral Fertilizer Usage"; see also JPRS 81743 of 10 September 1982 No 1349 of this series for further information on Central Asian Agriculture.]

/Text/ During the 1981-1985 period, the country's cotton growing republics must increase the average annual yield of raw cotton to 9.2-9.3 million tons and raise considerably the production of grain, fruit, vegetables and other farming products /1/. This will be accomplished mainly by increasing the cropping power of the crops.

In the cotton zone of the Central Asian republics, the soils are poor in terms of organic substance and mineral forms of nitrogen and phosphorus. More than 50 percent of the irrigated lands are subject to salinization and undergo leaching each year and a considerable portion of the territory is located in the zone of wind and irrigation erosion. Under these conditions, the chief means for maintaining soil fertility at a high level and meeting the biological requirements of the agricultural crops for nutrients is that of applying optimum dosages and uniform ratios of the mineral fertilizers. However, at the present time consideration is being given mainly to the nutrient requirements of the crops in a cotton-alfalfa crop rotation plan. In order to raise still further the effectiveness of soil fertility and the cropping power of all of the crops being grown, radical improvements must be achieved in the system for applying fertilizers, with consideration being given to the nutrient requirements for all of the crops being cultivated and with greater use being made of the data obtained from agrochemical studies.

The increasing fertilizer dosages being employed in the country's zone of irrigation are bringing about increased production expenses associated with the procurement, transporting, storage and application of mineral fertilizers. In order to determine the economic effectiveness of mineral fertilizer applications, use is usually made of the following indicators: productive capability of the soils, that is, the yield obtained in the absence of fertilizers based upon the soil's natural fertility under irrigation; the increase in yield per unit of fertilizer employed; residual action of fertilizers applied earlier; additional production expenditures per unit of fertilizer; expenses for harvesting and processing the crop; net income obtained from the use of a unit of fertilizer.

Of the mentioned indicators, the greatest amount of difficulty is encountered when attempting to determine the productivity capability of soils /2/ and the increase in yields obtained from the use of fertilizer under production conditions /3/

Academician D.N. Pryanishnikov, based upon a summary of data on growth in agricultural crop yields in Western Europe over a period of 150 years, pointed out that "50 percent of the increases in yields must have come from the use of mineral fertilizers, 30 percent -- from improvements in the seed and 20 percent -- from improvements in the cultivation techniques" /4/. This conclusion must obviously be corrected taking into account the specific natural-economic conditions of the zones and the agricultural crops cultivated.

Soil fertility is defined as the totality of properties which serve to ensure that a yield will be obtained. A distinction is usually made between natural (potential) and effective fertility. Natural fertility is defined as the gross supplies of nutrients and the natural water, air and thermal regime of the soil. Effective fertility includes all of the indicators of natural fertility plus a raised (owing to the application of fertilizers) content of mobile nutrients and improved (with the aid of various methods) conditions for plant growth and development and formation of the yield /5, 6/.

Let us examine some experimental materials on the establishment of soil fertility and the effectiveness of fertilizer applications, using field test data and production indicators.

Determining the plant requirements for mineral fertilizers. A yield of raw cotton or corn grain is greatly dependent upon the level of fertilizer usage. However the rates for increasing a yield lag behind an intensification in the use of fertilizer. It is obvious that with a high level of mineral fertilizer usage and with improvements being realized in the other growth factors for plants, further increases in the fertilizer dosages will have less of an effect on a proportional increase in the yield. Thus, according to the results of 90 field tests carried out on the basis of a unified network of zonal agrochemical laboratories in the Uzbek SSR, the nitrogen expenditures for raising 1 ton of raw cotton for a yield of 34.5 quintals per hectare amounted to 58.0 kilograms, for a yield of 37.8 quintals per hectare -- 68.8 kilograms and for a yield of 39.8 quintals per hectare -- it increased to 80.4 kilograms (see Table 1).

If we take the expenditures of fertilizer nutrients for obtaining an increase in a raw cotton yield, then an inverse dependence is clearly revealed, that is, the overall consumption of nutrients decreases as the cropping power increases. Thus, for an overall yield of 34.5 quintals of raw cotton per hectare, 427.2 kilograms of nitrogen, phosphorus and potassium were required in order to obtain 1 ton of increase and for a yield of 39.8 quintals per hectare -- 384.6 kilograms. When growing corn for grain, the nutrient expenditures per ton of increase in yield, with growth taking place in the cropping power, increased from 120.6 kilograms to 142.4 kilograms of nitrogen, phosphorus and potassium. This is obviously associated with the fact that an optimum grain yield level (80-90 quintals per hectare) had still not been achieved in the tests. Thus, when carrying out computations using comparable variants, the crop under cultivation and the yield level obtained must be taken into account.

TABLE 1

Mineral Fertilizer Expenditures for the Production of Raw Cotton and Grain Corn According To the Results of Field Tests by Zonal Agrochemical Laboratories in the Uzbek SSR

Yield Without Fertilizers, quintals per hectare	Active Agent Dosage, kg. per hectare				Overall Raw Cotton Yield, quins/hectare	Yield Increase Fm. Fertilizer quins/hectare	Active Agent Expenditures Per Ton of Output, kg.							
							Overall Yield				Yield Increases			
	Total	Including					Total	Including			Total	Including		
		N	P_2O_5	K_2O				N	P_2O_5	K_2O		N	P_2O_5	K_2O
Cotton (average for 78 tests 1971-1975)														
20.9	406	200	156	50	33.4	12.5	121.6	59.9	46.7	15.0	324.8	160.0	124.8	40.0
	431	225	156	50	35.2	14.3	122.4	63.9	44.3	14.2	301.4	157.3	109.1	35.0
	456	250	156	50	37.0	16.1	123.2	67.6	42.2	13.5	283.2	155.3	97.0	31.1
Cotton (average for 58 tests 1976-1978)														
22.5	490	260	180	50	37.0	14.5	132.4	70.3	48.6	13.5	337.9	179.3	124.1	34.5
	590	260	180	150	38.3	15.8	154.0	67.9	47.0	39.2	373.4	164.6	114.0	94.9
	540	260	180	100	38.5	16.0	140.3	67.5	46.8	26.0	337.5	162.5	112.5	62.5
Cotton (average for 90 tests 1976-1978)														
24.2	440	200	140	100	34.5	10.3	127.5	58.0	40.6	29.0	427.2	194.2	135.9	97.1
	540	260	180	100	37.8	13.6	142.9	68.8	47.6	26.5	397.1	191.2	132.4	73.5
	600	320	180	100	39.8	15.6	150.7	80.4	45.2	25.1	384.6	205.1	115.4	64.1
Corn for grain (average for 22 tests 1976-1978)														
40.1	275	150	75	50	62.9	22.8	43.7	23.8	11.9	7.9	120.6	65.8	32.9	21.9
	400	200	150	50	69.0	28.9	58.0	29.0	21.7	7.2	138.4	69.2	51.9	17.3
	450	200	150	100	71.7	31.6	62.8	27.9	20.9	13.9	142.4	63.3	47.5	31.6

TABLE 2

Mineral Fertilizer Expenditures for the Production of Raw Cotton According To the Results of Field Tests by Zonal Agrochemical Laboratories in the Uzbek SSR (data for 1971-1978)

Number of Tests	Annual Dosages, kg. per hectare			Overall Raw Cotton Yield quins/hectare	Yield Increase Fm. Fertilizer quins/ hectare	Active Agent Expenditures Per Ton of Output, kg.								
						Overall Yield				Yield Increases				
						Total	Including			Total	Including			
	N	P_2O_5	K_2O				N	P_2O_5	K_2O		N	P_2O_5	K_2O
78	250	156	5	37.0	16.1	123.2	67.6	42.2	13.5	283.2	155.3	97.0	31.1
90	260	180	100	37.8	13.6	142.9	68.8	47.6	26.5	397.1	191.2	132.4	73.5
58	260	180	100	38.5	16.0	140.2	67.5	46.7	26.0	337.5	161.5	112.5	62.5
Average for 226 tests	258	174	84	37.7	15.1	136.6	68.4	46.2	22.0	341.4	170.9	115.2	55.0

Determining the amount of increase in yield brought about through the use of fertilizers under production conditions at kolkhozes and sovkhozes. Naturally, in the field tests carried out by the zonal agrochemical laboratories at kolkhozes and sovkhozes and also in the extended field tests of scientific-research institutes, the level of the agricultural practices and the cropping power of the agricultural crops were considerably higher than under production conditions /7/.

When determining the amount of fertilizer required for obtaining the planned yield of raw cotton for the immediate future, use should be made mainly of the results of field tests carried out by the zonal agrochemical laboratories. According to the data obtained from 226 such tests, the nutrient expenditures for the formation of 1 ton of yield amounted to 68.4 kilograms of nitrogen, 46.2 kilograms of phosphorus and 22.0 kilograms of potassium and for an increase in yield -- 170.9 kilograms of nitrogen, 115.2 kilograms of phosphorus and 55.0 kilograms of potassium (see Table 2). When $N_{258}P_{174}K_{83}$ was applied, the raw cotton yield increased by 15.1 quintals per hectare compared to control without fertilizer and the overall yield amounted to 37.7 quintals per hectare.

Numerous studies have shown that when use is made of equivalent or similar mineral fertilizer norms the cropping power of the cotton and corn under production conditions is lower by 15 percent than that obtained during the field tests by zonal agrochemical laboratories and 25 percent lower than that from tests by scientific-research institutes. This is explained by a higher level of agricultural practices, by a leveling off of the soil fertility and by a more effective fertility.

We consider it important to establish, using the computational method and based upon the use of the results of extended tests by SoyuzNIKhI /All-Union Scientific Research Institute of Cotton Growing/ /2/, the level of the productive capability of soils in the irrigated regions of the Uzbek SSR in connection with the cultivation of cotton. We carried out the appropriate computations (see Table 3) using as our basis the 25 percent difference in cotton yields for the tests and under production conditions.

TABLE 3

Productive Capability of Soils in Irrigated Regions of the Uzbek SSR for the Cultivation of Cotton

Soil	Years in which field tests were carried out by SoyuzNIKhI	Raw cotton yield (quintals per hectare) in tests without applications of fertilizers	Computed yield for raw cotton (quintals per hectare) for production conditions	Productive capability of soils taking into account the residual action of fertilizers, quintals per hectare	Area of Soils in Republic	
					Thous. of Hects.	%
Typical sierozem	1926-1975	14.6	11.7	13.1	272	16.0
Light sierozem	1936-1964	19.0	15.0	16.5	204	12.0
Meadow-sierozem	1968-1973	22.8	18.0	19.8	280	16.5
Meadow-alluvial	1963-1974	17.5	14.0	15.4	51	3.0
Meadow	-	-	17.0	18.7	765	45.0
Meadow-takyr	1960-1974	15.9	12.7	14.2	77	4.5
Takyr	-	-	10.5	11.7	51	3.0
Average			15.5	17.2	1700	100.0
By 1985, 230,000 hectares of new land will be developed	-	-	9.5	9.5	230	-
Average	-	-	14.8	16.2	1930	-

In the absence of fertilizer usage and taking into account the planned volumes for the development of new lands throughout the republic, it will be possible to obtain 14.8 quintals of raw cotton per hectare. In the process, the residual effect of applied fertilizers should be taken into account, that is, the effective soil fertility should be included in the sphere of yield formation. The increase in raw cotton yield obtained as a result of fertilizers applied earlier can, with a certain degree of conditionality, be accepted as being 10-12 percent of the natural fertility. According to our computations, the average increase in yield for the republic as a result of residual effect is 1.7 quintals per hectare and taking into account the development of new lands -- 1.4 quintals of raw cotton per hectare.

Thus, when there is a high level of agricultural practices, an average of 16.2 quintals of raw cotton can be obtained per hectare (see Table 3) as a result of effective soil fertility. Hence the average amount of raw cotton yield ($Y_п$) per hectare for the republic we compute using the formula

$$Y_{эф} \quad Y_{пу} = Y_п,$$

where $Y_{эф}$ is the yield obtained as a result of effective soil fertility; $Y_{пу}$ is the increase in yield obtained by means of fertilizers during field tests by zonal agrochemical laboratories. In our case this amounts to 16.2 quintals per hectare + 15.1 quintals per hectare = 31.3 quintals per hectare.

We multiply the nutrient consumption for the formation of an increase in yield during field tests ($N_{171}P_{115}K_{55}$) by the planned increase in yield under production conditions and we determine in this manner the average annual nutrient norm per hectare:

171 X 15.1 = 258 kg N; 115 X 15.1 = 174 kg P_2O_5 and 55 X 15.1 = 83 kg K_2O

Hence, in order to obtain a raw cotton yield of 31.3 quintals per hectare on the average for the republic, an average of $N_{258}P_{174}K_{83}$ must be applied per hectare.

However, we are of the opinion that a determination of the agricultural requirements for mineral fertilizers must be based upon the results of production practice and upon the data from field tests carried out in various zones of the cotton growing republics of Central Asia. The regularities governing the effects of mineral fertilizers during field tests, expressed quantitatively in expenditure norms for the formation of the overall yield, can be employed with appropriate correction factors for computations under production conditions.

Studies and the practice of employing mineral fertilizers have shown that their expenditure norms for obtaining an overall yield serve as the basis for determining the mineral fertilizer requirements.

According to the data obtained from 439 field tests carried out by zonal agrochemical laboratories in the Uzbek SSR (360 tests summarized by I.N. Chumachenko) and SoyuzNIKhI (79 tests summarized by N.N. Zelenin and G.G. Babikova), the yield of raw cotton amounted to 38.0 quintals per hectare when $N_{258}P_{178}K_{102}$ was applied. When raised norms for nitrogen and phosphorus were applied, the raw cotton yield increased to 39.6-40.9 quintals per hectare. The untrient (NPK) expenditures for the formation of 1 ton of raw cotton, for an overall yield of 39.6-40.9 quintals per hectare, turned out to be equal to 151-154 kilograms (see Table 4).

If we examine jointly the problems concerned with yield growth and the quality of the raw cotton, then we note that the desired level for the use of fertilizers, especially phosphorus and potassium fertilizers, has still not been achieved for cotton sowings. Naturally, as an increase takes place in the dosage of nitrogen greater importance is attached to achieving a correct ratio for the nitrogen, phosphorus and potassium in the mineral fertilizers. It must be maintained in strict conformity with the nutrient requirements of the plants, for the purpose of obtaining the planned yield not only for the type of cotton but also for each variety cultivated.

Thus, under the conditions of irrigation farming, where a high level of fertilizer usage has already been achieved, the normative expenditures for mineral fertilizer for cotton must be accepted at the rate for 1 ton of output or for an increase in the yield obtained from a hectare.

According to our data, the mineral fertilizer requirements of the Uzbek SSR for the immediate future (1981-1985), applied in behalf of cotton in order to obtain 31.3 quintals of raw cotton per hectare is expressed by the following indicators (see Table 5). The computations are confirmed by mineral fertilizer usage at kolkhozes and sovkhozes in the Uzbek SSR. In 1979, after $N_{240}P_{150}K_{43}$ was applied, a yield of 31.3 quintals of raw cotton per hectare was obtained. If we take into account the fact that during the next few years a cotton complex consisting of

TABLE 4

Mineral Fertilizer Expenditures for Raw Cotton Production According To Field Test Data From SoyuzNIKhI and Zonal Agrochemical Laboratories of Central Asia for 1960-1979

Average Dosage of Mineral Fertilizer, kg. of Active Agent Per Hectare				Overall Yield When Fertilizer Is Applied, quintals per hectare	Increase In Yield From NPK, quintals per hectare	Active Agent Consumption Per Ton of Output, kg.								Nr. of Tests
						Overall Yield				Increase in Yield				
Total	Including					Total	Including			Total	Including			
	N	P_2O_5	K_2O				N	P_2O_5	K_2O		N	P_2O_5	K_2O	
435	199	138	98	35.1	11.2	124	57	39	28	388	178	123	88	100
538	258	178	102	38.0	14.1	142	68	47	27	382	183	126	72	111
610	322	185	103	39.6	16.0	154	81	47	26	381	201	116	64	101
616	304	210	102	40.9	17.0	151	74	51	25	362	179	124	60	117

newly developed lands will be placed in operation, then in order to maintain the average republic raw cotton yield at the 31.3 quintals per hectare level, higher dosages of mineral fertilizer will be required.

The use of mineral fertilizer, both at the rate for increasing a yield and for the overall yield, when applying $N_{255-258}P_{174-176}K_{101-83}$, will make it possible to obtain the planned yield.

Economic effectiveness of fertilizer usage. We view the economic effectiveness of fertilizer as the result obtained from their action and residual effect.

In our computations we employed the method of statistical groupings based upon the results of field tests carried out with cotton and corn for grain. The field tests were carried out according to unified plans in various regions of the Uzbek SSR. When grouping the field tests according to the level for the fertilizer application norms, the principal requirements for the statistical processing of the results were observed.

In the computations for the economic effectiveness of fertilizer usage, the cost for acquiring and applying it, with all of the rates adopted for farms in the Uzbek SSR, were taken into account /8/.

An economic analysis of the materials obtained from field tests carried out by zonal agrochemical laboratories testifies to the extremely high return realized from mineral fertilizer when applied in behalf of cotton and corn. On the average, for 90 field tests carried out with cotton, a maximum net income of 701.9-706.0 rubles per hectare was obtained when use was made of the highest fertilizer norms studied during the tests (see Table 6). The highest return per ruble of expenditure (~2.7 rubles) was observed when use was made of mineral fertilizer in a dosage of $N_{320}P_{180}K_{100}$.

For 22 field tests carried out in connection with the growing of corn for grain, an average net income of 305.6 rubles per hectare was obtained when $N_{250}P_{150}K_{100}$ was applied, with the profit per ruble of expenditure amounting to 2.14 rubles (see Table 7).

Economic effectiveness of mineral fertilizer usage depending upon the fertility of irrigated soils. It is extremely difficult to establish the yield obtained on various soils in the absence of fertilizer usage (by means of natural fertility and other factors).

TABLE 5

Computation of Mineral Fertilizer Requirements For Obtaining an Average Yield of Raw Cotton of 31.3 Quintals Per Hectare

Indicator	Increase in Yield	Overall Yield
Raw cotton yield (quintals per hectare) obtained by means of		
natural fertility	14.8	-
residual effect of fertilizers	1.4	-
Increase in yield from fertilizers, quintals per hectare	15.1	-
Expenditures per ton of fertilizer		
N	171	81.6
P_2O_5	115	56.4
K_2O	55	32.4
Annual dosage of fertilizers, kg. of active agent per hectare		
N	256	255
P_2O_5	174	176
K_2O	83	101

Our computations also included the data obtained from tests carried out by SoyuzNIKhI in irrigated regions of Central Asia on various soils /2/.

The yield level in the absence of fertilizers was established using the data of control field test variants with fertilizers and corrections for production conditions (see Table 3).

The results of raw cotton yields obtained over a period of 30-50 years of field tests reveal that the natural fertility of soils determines to a large degree the amount of yield to be obtained. This fact must be borne in mind when planning and determining the economic effectiveness of use of mineral fertilizers.

The obtaining of an equivalent yield of raw cotton (31.3 quintals per hectare) from various soils is accompanied by varying expenditures. If on light sierozem, meadow-sierozem and meadow soils, as a result of natural soil fertility, it is possible to obtain 15-18 quintals of raw cotton per hectare and taking into account the residual effect of fertilizers -- 16.5-19.8 quintals per hectare -- then on takyr and standard sierozem soils -- only 10.5-11.7 quintals per hectare and taking into account the residual effect of fertilizers -- 11.7-13.1 quintals per hectare.

Hence, in order to obtain the planned yield it will be necessary to obtain 11.5-14.8 additional quintals of raw cotton per hectare from light sierozem, meadow and sierozem-meadow soils through fertilizer applications and from takyr and sierozem type soils -- 18.2-19.6 quintals per hectare. In order to obtain an additional amount of yield, $N_{197-253}P_{132-170}K_{63-81}$ should be applied in behalf of the cotton to soils of the first group and when cotton is sown on soils of the second group -- $N_{311-335}P_{209-225}K_{100-108}$ (see Table 8).

TABLE 6

Economic Effectiveness of Complete Fertilizer Usage on Cotton Sowings Based Upon the Results of 90 Field Tests Carried Out By Zonal Agrochemical Laboratories of the Uzbek SSR (data for 1976-1978)

Indicator	Annual Dosage						
	$N_{200}P_{100}K_{100}$	$N_{260}P_{140}K_{100}$	$N_{260}P_{180}K_{100}$	$N_{260}P_{220}K_{100}$	$N_{320}P_{180}K_{100}$	$N_{320}P_{220}K_{100}$	$N_{320}P_{260}K_{100}$
Overall yield of raw cotton, quintals per hectare	33.0	36.6	37.8	38.6	39.8	40.6	40.9
Increase in yield from fertilizers, quintals per hectare	8.8	12.4	13.6	14.4	15.6	16.4	16.7
Cost of increase in yield in sales prices, rubles	518.85	731.10	801.86	849.02	919.78	966.94	984.63
Additional expenditures per hectare, rubles	147.4	199.2	218.7	235.5	248.2	265.1	278.6
Including:							
for fertilizers	88.46	116.08	127.57	139.07	143.69	155.19	166.68
for harvesting and processing the crop	58.96	83.08	91.12	96.48	104.52	109.88	111.89
Standard net income per hectare, rubles	371.4	531.9	583.2	513.5	671.6	701.9	706.0
Profit obtained per ruble of expenditure, rubles	2.52	2.67	2.67	2.61	2.70	2.65	2.53

TABLE 7

Economic Effectiveness of Complete Fertilizer Usage on Sowings of Corn for Grain

Indicator	Annual Dosage			
	$N_{150}P_{75}K_{50}$	$N_{200}P_{150}K_{50}$	$N_{200}P_{150}K_{100}$	$N_{250}P_{150}K_{100}$
Overall corn yield, quintals per hectare	62.9	69.0	71.7	74.6
Increase in yield from fertilizers, quins. per hect.	22.8	28.9	31.6	34.5
Cost of increase in yield, in sales prices, rubles	296.4	375.7	410.8	448.5
Additional expenditures per hectare, rubles	82.4	122.1	127.0	142.9
Including: for fertilizers	64.9	99.8	102.8	116.3
for harvesting and processing additional yield	17.5	22.3	24.3	26.6
Standard net income per hectare, rubles	214.0	253.6	283.7	305.6
Profit obtained per ruble of expenditure, rubles	2.6	2.08	2.23	2.14

TABLE 8

Fertility of Soils and Fertilizer Expenditures for Obtaining a Planned Yield of Raw Cotton

Soil	Raw cotton yield (quins. per hect.) obtained		Additional raw cotton to be obtained (quins. per hectare) for a planned cropping power		Per ton of increase in yield			For obtaining an increase in yield for a planned cropping power					
								31.3 quintals per hectare			40.0 quintals per hectare		
	By means of natural fertility	Considering residual effect of fertilizer	31.3	40.0	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Standard sierozem	11.7	13.1	18.2	26.9	171	115	55	311	209	100	460	309	148
Light sierozem	15.0	16.5	14.8	23.5	171	115	55	253	170	81	402	270	129
Meadow sierozem	18.0	19.8	11.5	20.2	171	115	55	197	132	63	345	232	111
Meadow alluvial	14.0	15.4	15.9	24.6	171	115	55	272	183	87	421	283	135
Meadow	17.0	18.7	12.6	21.3	171	115	55	215	145	69	364	245	117
Meadow-takyr	12.7	14.2	17.1	-	171	115	55	292	197	94	-	-	-
Takyr	10.5	11.7	19.6	-	171	115	55	335	225	108	-	-	-
Newly developed sierozems	9.5	-	21.8	-	205	138	20	447	301	44	-	-	-

TABLE 9

Economic Effectiveness of Mineral Fertilizer Usage Depending Upon Soil Fertility and the Raw Cotton Yield Planned

Soil	Cost for Increase in yield in sales prices (rubles) for overall yield		Additional Expenditures Per Hectare, rubles						Conditional net income per hectare, in rubles	
			Harvesting and processing cost for additional yield, rubles		Cost of fertilizer		Total			
	1	2	1	2	1	2	1	2	1	2
Standard sierozem	1073.0	1586.0	121.9	180.2	149.6	221.3	271.5	401.5	801.5	1184.5
Light sierozem	872.6	1385.6	99.2	157.5	121.7	193.3	220.9	350.8	651.7	1034.8
Meadow-sierozem	678.0	1191.0	77.0	135.3	94.6	166.0	171.6	301.3	506.4	889.7
Meadow alluvial	937.5	1450.4	106.5	164.8	130.9	202.5	237.5	367.3	700.1	1083.1
Meadow	742.9	1255.8	84.4	142.7	103.6	175.2	188.0	319.9	554.9	935.9
Meadow-takyr	1008.2	-	114.6	-	140.7	-	255.3	-	752.9	-
Takyr	1155.6	-	131.3	-	161.1	-	292.4	-	863.2	-
Newly developed sierozems	1285.3	-	146.1	-	209.3	-	355.4	-	929.9	-

Note: 1 - overall raw cotton yield of 31.3 quintals per hectare
2 - yield of 40.0 quintals per hectare.

Newly developed sierozem soils are characterized by extremely low natural fertility (9.5 quintals of raw cotton per hectare); $N_{447}P_{301}K_{44}$ must be applied in order to obtain a planned yield.

Under production conditions, an increase in yield is determined to a considerable degree by the mineral fertilizer dosage. Based upon this fact, the expenditures for obtaining an increase in yield, in rubles per hectare, were computed by obtaining a total on the expenses for obtaining and applying the fertilizers, harvesting and processing the additional yield and overhead expenses relating to the production costs (see Table 9).

When the planned yield of 31.3 quintals of raw cottong per hectare was obtained, the standard net income from the use of fertilizers on standard sierozem soils was 801.5 rubles, on light sierozem soils -- 651.7 rubles and on newly developed lands -- 929.1 rubles per hectare.

Thus it can be stated that the establishment of an increase in yield caused by mineral fertilizers, based upon the results of field tests carried out over a period of many years, and the carrying out of appropriate computations furnish acceptable indicators for determining the economic effectiveness of fertilizer usage under production conditions.

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DAMAGE TO AGRICULTURAL CROPS BY BIRDS DISCUSSED

Moscow ZASHCHITA RASTENIY in Russian 6 Jun 82 pp 28-29

/Article by E.N. Golovanova, senior scientific associate at the All-Union Institute for the Protection of Plants: "Birds on Agricultural Lands"/

/Text/ Some species of birds which feed on agricultural lands cause substantial damage to seedlings, to grain, fruit and melon crop yields and also to livestock production farms, storehouses and hothouse-hotbed farms.

Migratory sparrows inflict the greatest amount of damage (Spanish and Indian sparrows) in the republics of Central Asia and in southern Kazakhstan. Some farms in Tajikistan, despite laborious guard protection, are losing a considerable portion of their rice crop. Almost identical damage is being inflicted by Spanish and Indian sparrows in Kirghizia and Dzhambul Oblast in Kazakhstan, where the grain of millet and winter barley is being destroyed.

In Kaliningrad, Ivanovo, Moscow and Gor'kiy Oblasts, in Belorussia and in the Bashkir and Chuvash ASSR's, following a damp and prolonged spring, and in other regions where corn is grown, extensive damage is being inflicted on the crops by rooks. However the damage is of a local nature in all areas, with the radius of the nesting colony extending for 2-3 kilometers.

The damage being caused by birds to fruit and berry crops is noticeable and shows a tendency to increase. On some farms in the northwestern region, starlings are making cherries an unprofitable crop and in the southern section of the European part of the country and in Kazakhstan up to 20 percent of the grapes are being consumed. Fieldfare thrushes, the area and numbers of which have been increasing in recent years, have been causing damage in the northwestern region to the summer varieties of apples and to berry patches, especially strawberries and black rowan berries. During those years when there are few whortleberries and rowan berries in the forests, these birds destroy up to 80 percent of the black rowan berry crop in gardens.

Melon crop seedlings in the vicinity of forest plantings are plundered by rooks and magpies. The radius of the damage caused by rooks is limited to 3 kilometers around the nesting colonies.

The grain supplies at grain storehouses are being plundered by municipal pigeon populations and house sparrows. Moreover, these birds cause considerable indirect damage; they rip open the packaging and scatter and contaminate the grain.

During the past few years, more frequent complaints have been registered regarding the damage caused by sparrows, which peck away at the seedlings and blossoms of cucumber plants in hothouses.

Several hundreds of sparrows accumulate during the winter at livestock farms where feeding troughs containing grain are maintained in open facilities. It has been estimated that one sparrow consumes 5-6 grams of grain during a 24 hour period. Throughout almost the entire world, house and field sparrows are considered to be the primary pests at breeding and test plots.

The development of methods for combating birds is being impeded by the fact that the majority of the species which cause damage to crops and which achieve great numbers belong to clearly expressed polyphages. A considerable portion of their ration consists of insects, mainly mass pests: beet webworm, cutworms, pentatomids, locusts and so forth. We do not have one species of bird which causes harm to crops that stands "outside the law." Thus the principal method for lowering the degree of harm they cause consists of frightening them off using chemical, acoustical and mechanical means. Considerable results are also being realized from the use of agrotechnical methods for preventing damage. One of the first poisons to be employed extensively against birds in grain lures was strychnine and its derivatives. It was used against settled species of sparrows during the winter in populated areas and at poultry farms (in the GDR, FRG, Great Britain, U.S.A. and others).

During the 1960's, the workers at VIZR /All-Union Institute for the Protection of Plants/ and KazNIIZR developed a method for combating sparrows using grain lures containing barium fluoroacetate and fluoroacetateamide. Under production conditions, it produced fine results in combating migratory sparrows in a majority of regions in southern Kazakhstan, Kirghizia and Tajikistan. These preparations were employed successfully against sedentary species of sparrows at grain storehouses in Armenia, Leningrad Oblast and Krasnodar Kray. And although extensive use was made of measures for combating sparrows, no incidents of domestic livestock being destroyed were recorded -- millet was mainly employed as the lure; it was scattered over the soil's surface in a very light density: 3-4 grains per square meter. However, cats and dogs did perish and in some rayons even foxes, since the latter consumed the bodies of poisoned sparrows. At the present time, barium fluoroacetate and fluoroacetateamide are forbidden to be used in agriculture owing to their high toxicity for warm-blooded animals.

The testing of various preparations has shown that mass species of birds, particularly sparrows, possess a high immunity against insecticides and rodent poisons.

Scientists in the U.S.A. have isolated preparations which are toxic to birds -- 4-nitropyridine-N-oxy (avitrol) and 4-aminopyridine (avitrol 200). They do not cause secondary poisoning and they are relatively safe for mammals. However, available information indicates that birds do not readily consume lures containing these substances.

In recent years a number of countries have begun using preparations having a soporific effect against certain species of birds. The doped birds are collected and destroyed, with the possibility being available of saving useful species.

However, this method is suitable for use only under city conditions, where it is possible to gather up the sleeping birds, a very laborious process.

In many countries, especially in the U.S.A., tests are being carried out on chemical sterilizers. However the birds do not readily consume the lures containing these preparations and, in addition, they are not safe for other warm-blooded animals.

Chemical agents are often employed during the pre-sowing processing of seed. A large number of preparations have been proposed for use as repellants. Extensive use is being made in foreign countries of thiuram and anthrokhinon and in recent years -- metiocarb (mezurol) insecticide. N.Yu. Chentsova and B.Yu. Fal'kenshteyn discovered that zinc phosphide produces a fine repellent effect. During the 1950's, this preparation and also calcium arsenate were recommended for protecting corn seed against rooks.

Good results are achieved when use is made of nerve action preparations, with there being no need for each bird to contact the treated grain. In particular, vofatox and avitrol 200 are being used abroad for this purpose. Small quantities of the lure containing these preparations are scattered about on the tracts. The discovery of poisoning symptoms in individual specimens serves as a signal of danger for the remaining ones. This method has proven its usefulness for protecting corn seedlings against rooks.

During the past few years, American firms have recommended the spraying of methiocarb emulsions for protecting fruit and grain crops. However, numerous publications indicate that this preparation does not always ensure a high level of effectiveness.

Of the physical methods for frightening off birds, extensive use is being made in all countries of carbide or acetylene guns. Their effect is based upon the fact that at the moment of igniting an explosive mixture of acetylene and air, a sound is emitted which is similar to a rifle shot. The instruments operate automatically. Carbide guns are employed for frightening ducks away from rice fields in the U.S.A. cranes away from grain sowings in Canada, starlings away from fruit orchards in Western Europe and so forth. Using an acetylene gun, we successfully repelled rooks from corn seedlings at a plant breeding station of the All-Union Scientific Research Institute of Corn. One instrument provides protection for 4 hectares of sowings.

The acoustic method for frightening off birds was employed for the very first time in 1954 -- a tape recording of shrieks of "desperation" by individual species of birds was made. This method quickly became popular and it is now being used extensively for frightening off starlings from fruit orchards and vineyards. It is believed that this is the most effective method for combating this type of bird.

In southern Kazakhstan, an associate at the Institute of Zoology of the Academy of Sciences for the Kazakh SSR A.M. Sema successfully employed a Tembr tape recorder, a set of booster equipment and 20 loudspeakers for protecting 100 hectares of vineyards against starlings. We are still not employing the acoustic method extensively.

The acoustic method is not generally acceptable for many types of birds, particularly sparrows and thrushes. It is difficult to use in in mountainous terrain and its effectiveness decreases sharply in large orchards.

Notwithstanding various technical innovations, in many countries shotgun fire is still considered to be one of the most reliable means for protecting especially important crops against birds. In evaluating the use of this method at fruit growing farms in Leningrad Oblast and on rice sowings in Tajikistan, we drew the conclusion that it is effective against corvine family birds and starlings. It should be supplemented by the use of acetylene guns or other pyrotechnic means.

Not one of the measures employed for frightening off birds produces the desired results against any of the sparrow or thrush species. We recommend that fieldfare thrushes be included on the list of game birds, as has already been done in a number of foreign countries. The firing at these birds during authorized hunting seasons will promote a reduction in the number of the species, raise the degree of caution displayed by the thrushes and in this manner facilitate the frightening off of the birds.

We are of the opinion that mechanical protection for damaged crops from birds holds great promise for the future. Many horticulturists and workers at plant breeding stations cover their damaged grain tracts or berry bushes with old fishing nets. Our observations indicate that only nets having delicate strands produce the desired effect -- the birds are not supported by the plants upon which they alight. In the FRG, caprone nets are the only means for protecting small fruit patches from blackbirds. In Japan, caprone nets are thrown over high poles in order to protect grain sowings from sparrows and it is believed that this is the cheapest and best method. In the GDR and France, in addition to tied nets, use is made of cheaper but less durable one-piece nets which last but two seasons.

In addition to nets, a number of countries are using delicate viscose fibre. The plants get caught up in them as in a web. In France they are used for protecting the buds of fruit trees against birds and in other European countries they are used for covering experimental grain plots. This method is producing good results for us by providing protection for berry bushes and fruit trees which have not achieved a great height and which have well formed crowns. In Tajikistan, such viscose strands have turned out to be a highly effective means for protecting breeding sowings of sorghum against sparrows. The viscose stramds lie loosely on wheat and are blown off by wind and rain.

The waste products of curtain factories can be used in place of viscose strands.

Agrotechnical and other means can be employed for lowering the damage caused by birds. On tracts where rooks cause damage to corn and melon crop seedlings, we recommend that sowing be carried out immediately over a large area, with every attempt being made to avoid spillage and to ensure high quality placement of the seed in the soil. In the forest zone, where rooks cause extensive damage to corn seedlings and the number of bird colonies is not very great, it is best not to sow this crop on fields adjoining the rook breeding sites if it is possible to avoid doing this.

The harm caused by migratory species of sparrows can be lowered if the feed base of the birds is reduced in the areas of their mass breeding sites -- in Kirghizia and southern Kazakhstan. Here the sparrows appear 20-30 days prior to the commencement of the ripening of the winter grain crops and they feed on the grain that has been spilled out on the fields. Fine placement of the seed in the soil and harvesting of the crops without losses in the autumn will deprive the birds of

feed in the spring. The specialization of farms in grain production and large tracts of grain fields also exert an adverse effect on the sparrows, since they feed on cultivated cereal grasses only during the period of milky-waxy ripeness (the birds will not be able to shift from field to field or to settle for a long period in a given region).

In order to reduce the number of sedentary species of sparrows and also the harm caused by them, they must be deprived of access to the feed in the winter. This requires that the storehouses and poultry farms be appropriately equipped and that there be no grain spillage on the territory. Special screens must be made available for the open windows of hothouses. Weeds must be destroyed on tracts located in the vicinity of hothouses (their seed attracts birds). These same measures must be observed on the territories of plant breeding stations.

7026
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TILLING AND CROPPING TECHNOLOGY

KHAR'KOV AGROCHEMICAL SERVICE CONFERENCE

Overview of Proceedings

Moscow SEL'SKAYA ZHIZN' in Russian 21 Aug 82 p 2

[Text] The all-union seminar-conference of secretaries of central committees of Communist parties of union republics, party kraykoms, obkoms and raykoms, managers of a number of ministries and departments, workers in the Soyuzsel'khozkhimiya system, scientists and agricultural specialists was held during 18-20 August in Khar'kov. The participants considered questions of increasing the effectiveness of chemization of agriculture and strengthening its material and technical base in light of the requirements ensuing from the decisions of the 26th Party Congress, the May (1982) Plenum of the CPSU Central Committee and Comrade L. I. Brezhnev's report at the Plenum.

V. P. Nikonov, chairman of the all-union production and scientific association for agrochemical services for agriculture and USSR deputy minister of agriculture, gave a report at the conference.

M. S. Gorbachev, a member of the Politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, spoke at the conference.

Participants in the conference noted that the measures taken by the party for developing the chemical industry and increasing deliveries to agriculture of mineral fertilizers, chemical means of land improvement and chemical means of plant protection are creating conditions for successful fulfillment of the most important task for agriculture--providing for greater stability and productivity. Emphasis was placed on the need for strengthening the material and technical base of chemization and increasing its role in the implementation of the Food Program.

Under the current five-year plan it will be necessary to eliminate bottlenecks that reduce the effectiveness of chemization and to increase the return from each kilogram of fertilizers on all kolkhozes and sovkhozes. In order to realize this in practice it is necessary to introduce more extensively progressive technology for the utilization of mineral fertilizers, to eliminate violations of the balance of elements of plant nutrition, to eliminate the losses of fertilizers and to provide for their reliable storage. It is necessary to essentially increase the fertility of the fields as a result of more complete and efficient utilization of organic

fertilizers on each farm and expansion of the work for preparing composts using peat, lime materials, phosphorite meal and other fertilizers.

Detailed consideration was given to ways of improving the activity of Soyuzsel' khozkhimiya organizations which must become the real organizers of agrochemical work in the country and reliable partners of the kolkhozes and sovkhozes in the struggle for increasing the productivity of the fields.

Complaints were made against machine building enterprises for their slow creation and inadequate output of highly productive technical equipment for performing agrochemical work, against the Ministry of the Chemical Industry and the Ministry of the Fertilizer Industry for the failure on the part of individual enterprises to fulfill plans for the delivery of fertilizers, against the Ministry of Railways for violating time periods for providing railroad cars, and against Goskomsel'khoztekhnika for not providing for prompt repair of the machines of the agrochemical service.

The attention of local party committees, agricultural agencies and the agrochemical services of the oblasts, krays and republics was drawn to the need to take immediate measures to improve the utilization of mineral and organic fertilizers, lime materials and means of plant protection as an indispensable condition for increasing the productivity of grain and other agricultural crops in 1983.

Participants in the converence familiarized themselves with the work experience of the agrochemical centers of the Pervomayskiy, Lozovskiy and Balaklayskiy rayon Sel'khozkhimiya associations of Khar'kovskaya Oblast in organizing scientifically substantiated utilization of all means of chemization and creating a modern material and technical base for this service.

Participating in this conference were Z. N. Nuriyev, deputy chairman of the USSR Council of Ministers; N. F. Vasil'yev, A. A. Yezhevskiy, N. T. Kozlov, V. K. Mesyets and A. G. Petrishchev, USSR ministers; L. I. Khitrun, chairman of the USSR Goskomsel'khoztekhnika; P. A. Paskar', deputy chairman of the USSR Gosplan and officials of the CPSU Central Committee, the USSR Council of Ministers, ministries and departments, the AUCCTU, the Komsomol central committee and the USSR People's Control Committee.

Utilization of Fertilizers, Chemization

Moscow SEL'SKAYA ZHIZN' in Russian 26 Aug 82 p 2

[Article by N. Osychkin and N. Demikhovskiy (Khar'kovskaya Oblast)]

[Excerpts] As was announced in the press, during 18-20 August in Khar'kov there was an all-union seminar-conference of secretaries of central committees of the Communist parties of the union republics, party kraykoms, obkoms and raykoms, leaders of a number of ministries and departments, workers of the Soyuzsel'khozkhimiya system, scientists and agricultural specialists. They considered questions of increasing the effectiveness of chemization of agriculture and strengthening its material and technical base in light

of the requirements ensuing from the decisions of the 26th Party Congress, the May (1982) Plenum of the CPSU Central Committee and Comrade L. I. Brezhnev's report at the Plenum.

M. S. Gorbachev, a member of the Politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, participated in the work of the seminar-conference and spoke to those in attendance.

The Main Direction

A unified agrochemical service has been in operation in our country for three years now. These were the years of the establishment and the practical activities of a 500,000 man-detachment of workers, employees, specialists and scientists for further increasing the fertility of the land and increasing the productivity of agricultural crops. As V. P. Nikonov, chairman of the all-union production-scientific association for agrochemical service for agriculture, noted in his report at the seminar-conference, production subdivisions of the new branch have been created in all the union and autonomous republics, krays, oblasts and rural rayons. Soyuzsel'khozkhimiya also includes 15 institutes, 206 planning and research stations for chemization, 154 plant protection stations, 102 toxological laboratories and other organizations. The production associations are equipped with tractors, trucks and special machines.

The speaker emphasized that the concern for increasing the fertility of the fields has become primary in the activity of Sel'khozkhimiya subdivisions. Each year they increase the volumes of agrochemical work and other services for the kolkhozes and sovkhozes and improve the quality of this work. This year they will do 8 billion rubles' worth of work. Agrochemists receive, store and apply mineral fertilizers to the fields, bring in organic fertilizers, lime acid soils and apply gypsum to solonets soil. It is important to coordinate all of this work with the final result--the harvest.

Many problems related to the development of the agrochemical service are being solved specifically with the constant support of party and soviet agencies in a number of oblasts and republics of the RSFSR and the Ukrainian, Belorussian, Lithuanian, Moldavian and Kirghiz SSR's. They have found forms and methods of organizing agrochemical work which has made it possible to utilize means of chemization more effectively and to carry out a complex of work which gives agricultural production more stability and a greater return in products from each ruble of expenditures.

Regardless of where it originates, all that is best should be noted. The work experience of production and scientific agrochemical subdivisions of Belorussia is interesting. The work for creating farm, interfarm and state agrochemical points and centers in Lithuania has been studied. In Domodedovskiy Rayon of Moscow Oblast they have discovered the most effective ways of preparing and utilizing organic fertilizers, and in Voroshilovgradskaya Oblast they have accelerated the construction of a production and technical base with inexpensive lightweight construction elements.

In a word, little by little, we are gathering an accumulating all that is best, both large and small, which provides for the proper effectiveness of chemization of agriculture in the country. There is only one goal--to select correctly the ways of creating a material base and to find the best organizational forms and methods which, beginning with the first years, will make it possible to transform the agrochemical service with its great capabilities into an important unit of agricultural production.

As practice has shown, the best way of utilizing fertilizers, pesticides, microbiological substances and other substances is to concentrate them in the hands of a single centralized service, which not only takes on the responsibility for methodological guidance of the process of chemization in a particular zone, but also helps to carry out the specific work, having at its disposal, naturally, the appropriate technical means.

Khar'kovskaya Oblast provides a good example in this regard. On of the first agrochemical complexes has been created there--the Pervomayskiy. The work of the rayon party organization for establishing it was approved by the CPSU Central Committee. Now the oblast is undertaking energetic measures so that each of the 25 rayons will have its own agrochemical complex. There are already 11 of them in operation, another 9 will go into operation this year, and the other 5 will be constructed next year.

Khar'kovskaya workers have taken yet another important initiative to expand the possibilities of applying the most valuable kinds of fertilizers: several threshing floors of the oblast have been hooked up to the Tol'yatti-Odessa ammonia line, and near Balakleya, next to one of these distributing stations, they have installed equipment that prepares ammonia water directly for the field. They take it from here to be applied to the soil, sometimes during plowing and sometimes as a top dressing for the planted areas.

All these undertakings of the Khar'kovskaya workers provide an example that is worthy of the most extensive application. During two days Khar'kov guests visited the rayons, became acquainted with the principles and the technology of agrochemical service, and learned on the spot about the prospects for the development of this essentially new branch of production in rural areas. Then there was a broad exchange of opinions regarding how this service should be developed in the future.

The Pervomayskiy Example

Naturally, the Pervomayskiy agrochemical complex, the firstborn of such rayon subdivisions of Sel'khozkhimiya, drew the most attention to itself. It has already been in operation for eight years, and its indicators give a clear idea of how much this means for the farmers.

"Our great interest in the Pervomayskiy complex," said V. P. Mysnichenko, first secretary of the Khar'kovskaya Obkom, at the meeting, "was brought about by the fact that we decided to make it an experimental laboratory for the organization of the best forms of agrochemical service for the kolkhozes and sovkhozes and highly effective utilization of chemical means in agriculture."

The complex is also beginning to do a large amount of work in feed production. Its laboratory controls the quality of feeds in terms of several indicators (carotin content, moisture level). When corn silage is prepared preservatives are introduced into the crust mass with their own equipment in order to prevent processes of decay in it.

And in the agrochemical training classes personnel are trained and agrochemical knowledge is spread among production leaders and specialists. The shower rooms, dining room and medical dispensary also play an important role in improving the collective's specific working conditions.

The Pervomayskiy agrochemical complex has taken on the responsibility of accumulating, storing (and it is much easier for them to do this then for each farm to do it individually), and also applying fertilizers at the optimal times, in the best combination, and in proper doses, only in keeping with the soil chart. And it means a great deal that about 80 percent of the fertilizers are now applied to the basic plowed areas, that is, when the mineral substances are best assimilated by the soil and plants, and when they produce the greatest additional yield. The agrochemical complex applies about three-fourths of the organic fertilizers for the farms and fights against weeds, agricultural pests and plant diseases.

The rayon now has the necessary conditions for programming the harvest, with certain adjustments for possible changes in the weather. The farms and the complex have contractual relations which clearly define the responsibilities of the parties. The client, the farm, along with specialists of the complex, determine the list of forthcoming work and it is then evaluated when it is done. Agrochemists are paid according to this. Its level depends on the final result, that is, on the harvest.

The Pervomayskiy practice has convincingly proved to the farmers of Khar'kovskaya Oblast that the correct course has been taken toward a large effect from chemization. Therefore the oblast party committee has mobilized the efforts of many enterprises and research and design institutes of the cities to help the grain growers in all rayons to have such agrochemical complexes. The fulfillment of patronage commitments is under constant supervision.

The reports and speeches concentrated attention on problems of more efficient utilization of anhydrous ammonia, which is a large reserve for increasing the yields. By 1985 1.2 million tons of it must be applied in the country, and by 1990--2.5 million tons. Approximately 500,000 tons a year will be used by rayons that are adjacent to the 30 distributing stations of the Tol'yatti-Odessa ammonia line. It is of primary importance to construct proper storage places for valuable fertilizer. Under the last five-year plan the plan for constructing railside warehouses was fulfilled by only 8 percent, and other warehouses--by 36 percent. If this is repeated this year, hundreds of thousands of feed units will be lost. Unfortunately, this is precisely what is happening.

The experience of the Khar'kovskaya workers is of great value for the entire country. The fact is that the material base for the chemization of agriculture is still seriously in arrears, and many oblasts, krays and republics practically do

not provide for high-quality receiving and complete storage of fertilizers and other chemical products. These products are received at 2,200 points in the country and 603 of them are open areas. An especially intolerable situation has arisen this year in Primorskiy Rayon in the Udmurtskaya ASSR. There 10,000-14,000 tons of fertilizers and 30,000-35,000 tons of lime materials were dumped "by the roadside." There is a similar situation in Kalininskaya, Kostromskaya, Novgorodskaya and Arkhangel'skaya oblasts.

Participants in the seminar-conference resolutely emphasized the need for unconditional fulfillment of the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 March 1981, "On Measures for Strengthening the Material and Technical Base of the Agrochemical Service and Increasing the Effectiveness of Chemization of Agriculture in 1981-1985." This document envisions constructing highly mechanized storage capacities for 15 million tons, including railside bases for 5 million tons, farm storehouses for 10 million tons, and interfarm chemization points and Sel'khozkhimiya divisions which are being created for serving several farms with an overall area of 15,000-20,000 hectares. The construction of chemization facilities has been developed extensively in Belgorodskaya Oblast. Here agrochemical centers are being constructed immediately in 15 of the 18 rayons. The work is proceeding fairly well in the Tatar ASSR, the Chuvash ASSR, and in Moscow, Volynskaya, Dnepropetrovskaya and L'vovskaya oblasts.

But in the country as a whole the construction of these facilities is proceeding at slow rates. In 1981 the plans for construction and installation were fulfilled by only 6 percent, the plan for the startup of facilities--by 67 percent. During 7 months of this year the plan for construction and installation work was fulfilled by 99.2 percent, but the plan for the startup of facilities was fulfilled by only 36 percent. In the Russian Federation 41 oblasts are failing to fulfill startup plans, and this applies to 13 oblasts in the Ukraine. Plans for the construction of chemization facilities are regularly unfulfilled in Kazakhstan and Uzbekistan, and associations are operating poorly in this area in the Georgia, Tajik, Turkmen, Kirghiz and Moldavian union republics.

During all three years of the branch's existence not a single storehouse for means of chemization has been introduced in Volgogradskaya, Chelyabinskaya, Kemerovskaya, Omskaya or Irkutskaya oblasts, or the Kabardino-Balkarskaya, Severo-Osetinskaya or Checheno-Ingushskaya autonomous republics. The construction of a warehouse for toxic chemicals has been underway since 1975 at the Yevpatoriye station in Krymskaya Oblast. Warehouses for mineral fertilizers have been "under construction" since 1976 at the Matakan station in Chitinskaya Oblast and the Kharabali station in Astrakhanskaya Oblast. There are prolonged construction projects in Penzenskaya, Kurganskaya, Sverdlovskaya and Bukharskaya oblasts and in Altayskiy Kray.

Mechanized storehouses for fertilizers are included in the construction projects of the agro-industrial complex which are to be considered as shock construction projects of the five-year plan. If there are warehouses, as the Khar'kovskaya experience shows, all the fertilizers will be preserved and the yields will increase. It is necessary for the course of their construction to be supervised by party committees. It is also necessary to construct storehouses for chemical means of land improvement, anhydrous ammonia and feed preservatives as well as for liquid compound fertilizers and means of plant protection.

Sources of a Large Harvest

But accepting and preserving means of chemization is only one aspect of the activity of agrochemical associations. There is another, no less important one: to distribute them efficiently throughout the territory and for the various crops, to select correctly the place and time of their application, to perform agrochemical work well and in the necessary combination with other work, and to learn to control the mineral nutrition of the plants. Without this one cannot obtain the proper effect from the expenditures on chemistry, regardless of how significant they may be.

T. N. Kulakovskaya and I. S. Shatilov, VASKhNIL academicians, P. D. Popov, director of the All-Union Scientific Research Institute of Organic Fertilizers, and N. M. Golyshin, doctor of biological sciences, who spoke at the seminar-conference, drew attention to the need for improving the quality of mineral fertilizers, distributing them and applying them correctly, decisively improving the utilization of manure and other organic fertilizers, and increasing the humus balance of the soil, which has begun to decline in many places. It is necessary for problems of chemization to be resolved in close connection with scientifically substantiated zonal systems of farming and for fertilizers to consistently produce maximum yields.

In this connection, two requirements included in the Food Program should be unconditionally fulfilled.

The first one is to allot the kolkhozes and sovkhozes all the mineral fertilizers and means of plant protection they require for producing products on reclaimed land. It is necessary to change over to programmed yields on irrigated lands. This kind of experience has been accumulated not only in scientific institutions, but also on many kolkhozes and sovkhozes.

The second is to increase the allotment of mineral fertilizers for grain crops in the country as a whole 1.7-fold by 1985 as compared to 1980, and 2-fold by 1990. Fertilizer resources should be increased mainly in zones that produce the greatest increase in the production of commercial grain. The zones which are already obtaining 6-8 kilograms of grain from each kilogram of nutritive substances include, above all, the krays and oblasts of the Northern Caucasus, the central chernozem zone, the Ural area, Siberia, Kazakhstan and the south of the Ukraine.

The following conclusion also arises in connection with the distribution of means of chemization. For industrial crops, vegetables and potatoes, on the whole, the norms for allotment of fertilizers are close to optimal. But we are not receiving the corresponding yield. And this is because in many places they have not solved the problems of seed growing, they do not observe elementary agrotechnology, and they have not eliminated the acidity of the soil. Apparently, in places where these compulsory requirements are not met, one should simply refrain from applying mineral fertilizers for the time being. After all, each year there is an overexpenditure of more than 600,000 tons of active substance of fertilizers just for increasing the yields of potatoes. It is not difficult to calculate how much additional grain and feeds could be obtained with this. This is a fundamental issue and it demands attention and a resolution.

At the present time the effectiveness of the means of chemization has decreased sharply in many regions because of the poor quality of agrochemical work. The main problem is that the majority of the fertilizers are not applied carefully, but are broadcast, and very irregularly. On the one hand these shortcomings are caused by the machines that are now being produced by industry. On the other hand, the farms have not managed to carefully regulate the technical equipment before taking it out onto the fields and during operation the proper breadth of grasp is not maintained, especially with machines of the KSA and ARUP type.

Where to Apply Fertilizers and With What?

At the demonstration area of the Lozovskiy Sel'khozkhimiya association participants in the seminar-conference were shown machines for conducting agrochemical work. Arranged in a long line were various fertilizer loaders and unloaders, machines for top dressing planted areas, machines for loading and distributing fertilizers and lime materials, machines for applying liquid fertilizers and others. Special attention was drawn to many of these.

The highly productive AP-7 fertilizer transfer machines, the KST-5 distributor, the PRT-10 and PRT-16 machines for local application of organic fertilizers, the RZhST-8 and MZhT-23 machines for applying liquid organic fertilizers, the YuMZ-6 and PEA-1 loader-excavators, the ZMU-8 machine for transporting and applying solid organic fertilizers, the pneumatic jet fertilizer application machine with a 30-meter grasp, the PZhU-5 and PZhU-9 top dressers, the PPTsU-11.5 semitrailer tank cars for transporting liquid chemical products which are produced jointly by Soviet and French industry, and others.

"All these should be out on the fields," said the participants in the seminar. "But these are the only models of many of the machines . . . ."

A fair remark. A number of excellent machines have now been created for agrochemical work, but the path to series production has been closed to them for many years. Without waiting for them to enter the plant conveyor, engineers and efficiency experts are designing their own technical equipment and party committees are helping to arrange its production. For example, everyone likes the organic fertilizer distributor which is installed on a KrAZ which is manufactured in Dnepropetrovskaya Oblast. This year this same oblast will produce 500 TO-25 frontal loaders for fertility detachments. The initiative of Khar'kovskaya workers produced a self-propelled agrochemical machine that is used with the T-150 K tractor. In Irkutskaya Oblast they have begun to produce a similar set of machines for the K-700 tractor. Belorussian enterprises are producing the efficient MVU-30 machine and they have begun to assemble seeders for local application of solid mineral fertilizers.

While supporting local initiative in all ways, participants in the seminar-conference still noted that specialized plants for agricultural machine building are delaying the production of modern equipment for conducting agrochemical work and have been keeping outdated models of machines on the conveyors for too long.

Where and when to apply mineral and organic fertilizers are very important questions. Managers of farms and Sel'khozkhimiya associations of Khar'kovskaya Oblast have constantly emphasized that they manage to apply up to 70-80 percent of all

the fertilizers that are utilized during the basic cultivation of the soil, and the rest of them are used as starter fertilizers and applied in the rows during planting and when the plants are top dressed during the growing period. This increases the effectiveness of the fertilizers by 15-16 percent but in the country as a whole the picture is somewhat different--only 50 percent of the fertilizers are applied during basic cultivation and the other half is used during cultivation, loosening and harrowing in the spring. The times and methods are the least effective. The fertilizers go into the rapidly drying layer of the soil and have a very weak effect.

It was pointed out at the seminar-conference that a high return from mineral and organic fertilizers can be achieved with various forms of organization of the work of the agrochemical service. In the Russian Federation, the method of cultivating the fields for a given yield or "comprehensive chemization" has become widespread. This was discussed in detail by the chairman of Rossel'khozkhimiya, V. M. Bel'chenko. This is done as follows. The fields selected for the crop rotation should be fallow or have predecessors that are harvested early. Based on existing resources and plans, the farm sets the level of productivity of the crops and concludes an agreement with the Sel'khozkhimiya association for increasing the fertility. The latter develops planning estimates. Then they apply lime or gypsum to these fields at the optimal times, apply fertilizers and raise the content of nutritive elements and humus to the levels which will provide for the given yields. After the entire complex of agrochemical and protective work is completed, the fields are returned to the kolkhozes or sovkhozes with a certificate which guarantees that a large yield will be obtained during each year of the crop rotation. The fields remain under the supervision of the agrochemical service.

It is generally agreed that capital agrochemical repair of the fields is of inestimable significance for farming. This should become widespread in the Russian nonchernozem zone, Belorussia, the Baltic states and the western part of the Ukraine. Last year comprehensive improvement was carried out on 2 million hectares and this year it should be done on 3 million hectares. Agrochemical work requires a good deal of technical equipment and experienced machine operators and specialists. But local agencies frequently draw upon technical and human resources of Sel'khozkhimiya for other purposes during the summer and autumn, which causes harm to the fertility and the future harvest.

Experience in chemization in various zones of the country shows that the necessary economic effectiveness can be achieved only with comprehensive work involving chemical improvement of the soil, utilization of organic and mineral fertilizers, and complete protection of the plants from pests, diseases and weeds. Khar'kovskaya workers provide a valuable example of this. There is also much that is interesting in the organization of the agrochemical service in other places in the country.

As was noted at the seminar-conference the agrochemical service should play a larger role in resolving problems of chemization of agriculture and, on the basis of this, the production of large and stable yields. For some reason many agronomists are still not fully participating in the work that is done by Sel'khozkhimiya, and some of them have completely refrained from chemization, thinking that only a specialized service should engage in this work. The interests of the crops are promoted if agronomists and agrochemists work in close contact and struggle for a sharp increase in yields through joint forces and with unified actions.

The all-union seminar-conference took place in a businesslike way and in a setting of great expectations for fulfilling the tasks set for agriculture by the 26th Party Congress and the May (1982) Plenum of the CPSU Central Committee. The exchange of valuable experience and the discussion of the important problems of chemization will serve the interests of increasing the fertility of the land and the productivity of agricultural crops, as well as the implementation of the USSR Food Program.

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NEW DEVELOPMENTS, OPERATIONAL TRENDS IN SEL'KHOZKHIMIYA SERVICES

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 5, May 82 pp 3-4

/Article by V.L. Zakharov, VPNO Soyuzsel'khozkhimiya: "New Advances for Sel'khozkhimiya Associations"/

/Text/ At the present time, there are 3,260 rayon and inter-rayon production associations, supply bases and motor transport enterprises within the Soyuzsel'khozkhimiya system. They have at their disposal 111,000 tractors, 115,000 motor vehicles, more than 450,000 special machines for the use of chemical processes and 10.4 million tons of storehouse space for the storage of chemical resources.

Mechanized detachments have been created for the carrying out of agrochemical work within the structure of production associations. In 1981 these detachments carried out 95 percent of the soil liming and gypsuming work in the country, 42 percent of the transporting and 32 percent of the applying of organic fertilizers, 25-30 percent of the mineral fertilizer and pesticide applications, 50 percent of the peat procurements and 32 percent of the services rendered in behalf of agricultural aviation.

The best operational indicators were achieved by the Sel'khozkhimiya Association in the Moldavian SSR, the enterprises of which in 1981 moved 68 percent of the republic's overall volume of organic fertilizers out onto the kolkhoz and sovkhoz fields and applied 61 percent of them. Compared to 1980, the work of applying mineral fertilizers increased by 45 percent and that of applying pesticides -- an increase of 1.7 times.

In Slobodzeyskiy Rayon, the enterprises of Moldsel'khozkhimiya are carrying out almost all of the agrochemical, soil improvement and excavating work at the kolkhozes and sovkhozes. Towards this end, the association has within its structure nine mechanized stations for the use of chemical processes, mechanized and land reclamation detachments, a plant protection station, a supply base for chemical products, a motor vehicle column, a station for the technical servicing of machines and a support base for a zonal agrochemical laboratory.

Each station for the use of chemical processes of the rayon association appears as a powerful agrochemical complex. For example, at the station for the use of chemical processes, which services the interkolkhoz Pamyat' Il'ichu Orchard, there are six mechanized detachments equipped with sprayers and fixed and mobile means for the preparation of working liquids. Chemical treatments are carried out here based upon recommendations handed down by the signalling and forecast service.

Taking into account the requirement for complete agrochemical services for all agricultural enterprises in Moldavia, a program has been developed for the placement of 139 all-round stations for the use of chemical processes, 55 of which are already in operation. The plans call for 45 more stations to be placed in operation by 1985.

A great amount of work is being carried out in Khar'kovskaya Oblast in connection with the introduction of an industrial technology for the use of mineral fertilizers. In 1981, agrochemical complexes having mechanized storehouses, domestic facilities and an appropriate grouping of technical equipment were built in 10 rayons. During the first 3 years of the five-year plan, such complexes will be built in all 25 of the oblast's rayons.

The experience of the Pervomaysk Agrochemical Complex in this same oblast, which has been in operation since 1974, has shown that the introduction of an industrial technology for work with fertilizers raises their effectiveness by 25 percent. In the process, mineral fertilizer losses decrease by twofold and labor productivity is raised by more than a factor of two. All mineral fertilizers are stored at storehouses of a rayon association. They are delivered to the farms and applied to the soil using the transport vehicles and mechanisms of Sel'khozkhimiya. In addition, the mechanized detachments of this association transport and apply more than 60 percent of the organic fertilizers used on the farms.

Deserving of attention is the operational experience accumulated at the Sel'khozkhimiya association in Lipetskaya Oblast in connection with providing all-round agrochemical services for fallow fields. Commencing in 1979, the rayon agrochemical associations, based upon agreements with the farms (in accordance with the planning estimates for fallow fields), have been applying 50-100 tons of organic fertilizer, 1.5-2 tons of phosphorite meal and 2-3 quintals of potassium salt. In those areas where it is necessary to do so, the soil is limed at the rate of 5-9 tons of dolomitic meal or 15-20 tons of defecation mud per hectare. Chemical weed control work is started with the appearance of weed seedlings. By way of providing material interest, the machine operators are paid a 40 percent bonus added on to their wages for achieving outstanding indicators and for good indicators -- a 30 percent bonus.

In Zagorskiy Rayon in Moscow Oblast, the Sel'khozkhimiya association undertook to provide complete agrochemical services for five backward sovkhozes. For this purpose, a branch of the association was created in the zone which bears responsibility for the fertility status of 25,000 hectares of arable land. Firm business-like contacts have been established with the farms being so supported. In accordance with a plan approved earlier, the mechanized detachments and teams of the branch transport and apply organic and mineral fertilizers to the soil, carry out soil liming work, treat the crops with pesticides and carry out other agrochemical operations. The agricultural chemists provide a guaranty certificate for each repaired field.

The Dzerzhinskiy Rayon Sel'khozkhimiya Association in Minskaya Oblast enjoys a fine reputation among the grain growers. Its mechanized teams deliver and apply organic and mineral fertilizers to the soil and carry out liming work on the fields of the farms. The association's specialists determine the arable land requirements for mineral fertilizers in conformity with cartograms, they distribute the mineral fertilizers and jointly with the kolkhoz and sovkhoz agronomists they compose the

plans for employing them on each field. The association carries out work associated with the procurement and transporting of peat and the preparation of compost and it carries out almost completely the measures aimed at combating weeds, pests and agricultural crop diseases.

Based upon the results of the All-Union Socialist Competition for 1981, the collective of the Dzerzhinskiy Rayon Sel'khozkhimiya Production Association was awarded the challenge red banner of the CC CPSU, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee.

The effectiveness of the chemical resources is greatly dependent upon the availability of special equipment for employing them. Unfortunately, industry is systematically failing to satisfy the requirements for such equipment.

International practice and studies carried out in our country have shown that the replacement of the existing NRU-0.5, 1RMG-4, KSA-3 spreaders by units of the STT-10, RUM-8, RUM-16 and KSA-7 types will raise labor productivity by a factor of 1.5-2 and the introduction of MVU-30 self-propelled machines and mobile power equipment mounted on T-150K and K-701 tractor undercarriages -- by a factor of 7-8.

The effectiveness of the mineral fertilizers is also dependent upon the method used for applying them. It has been established that, assuming equal fertilizer dosages, a local application furnishes 2-5 additional quintals of grain per hectare than a top dressing and for vegetable and silage crops -- from 20 to 40 quintals per hectare.

The plans for the Eleventh Five-Year Plan call for the effective use of all organic fertilizer resources. By 1985, the volume of their use must be raised to 1-1.2 billion tons. Approximately 900 million tons of organic fertilizer have been applied in behalf of this year's crops and this is considerably more than the annual average for the Tenth Five-Year Plan. In particular, a noticeable increase has taken place in the use of organic fertilizers in the Belorussian SSR, where approximately 14 tons have been applied per hectare of arable land. A great amount of work concerned with accumulating organic fertilizer is being carried out on many farms in the Ukraine, the Baltic republics, Krasnodarskiy Kray and in Moscow and Leningrad Oblasts.

A highly effective and long-acting agrotechnical measure and one which radically changes the chemical and physical properties of acid soils is that of liming operations. One ton of lime during a rotation for a seven-field crop rotation plan produces an increase of 5 quintals of feed units and a ruble of expenditure for liming work furnishes an increase of more than two rubles in net income. Liming work is being carried out rather successfully in Belorussia, the Baltic republics and in some oblasts in the Ukraine and the RSFSR.

The annual work volumes for the liming of soil throughout the country must be raised to 13 million hectares and this requires more than 100 million tons of lime materials. The development of capabilities for producing this material must be accelerated.

As a result of the constant attention given to agriculture by the party and government over the past 15 years, the deliveries of mineral fertilizer have

increased by more than threefold and the use of organic fertilizers, pesticides and ameliorants has doubled. Efficient use must be made of all chemical resources and in a manner such that each kilogram produces a high return and a maximum amount of agricultural products. The solving of this task has been entrusted to Sel'khozkhimiya.

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MINERAL FERTILIZER PRODUCTION, DELIVERY PROBLEMS REVIEWED

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 6, Jun 82 pp 3-4

/Article by B.I. Kolomazov, deputy minister for mineral fertilizer production: "Concerning the Tasks for the Eleventh Five-Year Plan"/

/Text/ The Ministry of Mineral Fertilizer Production was created in late 1980 and it was assigned responsibility for developing the production and deliveries of mineral fertilizers and chemical plant protection agents. The ministry includes 84 industrial enterprises which are producing 87.2 percent of the mineral fertilizers and 50.4 percent of the KhSZR /khimicheskiye sredstva zashchity rasteniy; chemical plant protection agents/ being produced throughout the country as a whole. The principal task of the branch during the Eleventh Five-Year Plan will be that of achieving further growth in the production of mineral fertilizers and the raw materials for them. By 1985 the production volume for fertilizers must reach 31.43 million tons, 148.4 percent of the actual production in 1980. Towards this end, the plans call for more complete use of existing capabilities and the placing in operation of new capabilities for 8 million tons. The production volume for KhSZR must be increased during the five-year period by 54.6 percent and amount to 352,200 tons in 1985, compared to a planned volume for the USSR as a whole of 652,000 tons. The solving of the established task requires great organizational work both at enterprises of the ministry and at those construction-installation organizations engaged in building these installations.

In 1981 the enterprises of the ministry produced 22.5 million tons of fertilizer, including nitrogen fertilizer -- 8.8, phosphorus fertilizer -- 4.6, potassium fertilizer -- 8.2 million tons and KhSZR -- 257,400 tons. This year the plans call for an increase of 11.8 percent in the production of nitrogen fertilizers, phosphorus fertilizer -- 2.4 percent, potassium fertilizer -- 16.3 percent and KhSZR -- 4.2 percent.

The capability of the newly placed in operation complex for the production of nitrogen fertilizers at the Pridonskoy Chemical Plant is being increased, the production of phosphorus fertilizers at the Meleuzov Chemical Plant will be raised, the capability of the carbamide production operation recently placed in operation at the Berezniki Nitrogen Fertilizer Plant is being mastered, the planned capability for the production of kontoran has been developed and the production of Lenatsil at the Ufa Khimprom Industrial Association is to be increased. With the completion of the construction of the Tol'yatti-Odessa ammonia pipeline, 30 stations will be placed in operation which will supply the

* In the article, the indicators for mineral fertilizer production are provided in terms of active agent and KhSZR -- in arbitrary units.

special transport vehicles of Sel'khozkhimiya branches with liquid ammonia for application to the soil. This year this effective method for employing nitrogen must be employed extensively owing to the placing in operation of stations along the ammonia pipeline and also as a result of more efficient use of existing storehouses at enterprises of the ministry and of the equipment at Sel'khozkhimiya branches. In order to ensure firm success for this undertaking, efficient interaction must be organized between the industrial enterprises, Sel'khozkhimiya branches and the kolkhozes and sovkhozes. The overall task of the Ministry of Mineral Fertilizer Production and the USSR Ministry of Agriculture consists of making full use of the available equipment for applying liquid ammonia to the soil and further expanding the use of this effective and well proven method.

During the first quarter of this current year, the enterprises of the Ministry of Mineral Fertilizer Production supplied agriculture with 114,000 tons of liquid nitrogen-phosphorus fertilizers, with 474,100 tons to be supplied for the year as a whole. It bears mentioning that solid nitrogen and phosphorus fertilizers are being produced mainly in granulated form. With the production of carbamide, more extensive use is being made of an additive which prevents caking of the granules of the product.

Bulk shipments of mineral fertilizers are increasing in scale with each passing year. This is making it possible to mechanize the loading and unloading operations and to lower fertilizer losses. In this regard, a solution must be found for the problem of constructing specialized storehouses at the Sel'khozkhimiya branches and on the farms.

At the present time, the development of mineral fertilizer production is based upon units having a large singular capability. For example, two carbamide production units at the Tol'yattiazot Industrial Association are producing 2,700 tons of product daily, the shipping of which requires 50 railroad cars. The Novomoskovsk Azot Industrial Association produces 2,500 tons of fertilizer daily, the shipping of which requires 42 cars.

For such production volumes, the rhythmic shipping of fertilizer is a component part of the technological process and any breakdown in shipments leads to a disruption in the work of the entire enterprise. The timely supply of mineral fertilizers for agriculture is dependent upon the rhythmic availability of railroad freight cars (this problem is best solved if an adequate number of specialized registered freight cars is available).

In 1981, owing to disruptions in the availability of railroad freight cars, the enterprises of the Ministry of Mineral Fertilizer Production fell short in fulfilling their plan by approximately 1.1 million tons of fertilizers. The organizations of Sel'khozkhimiya should ideally work out the problem of fertilizer distribution from each enterprise in a more detailed manner, taking into account increased shipments of mineral fertilizers by means of motor transport. Thus, in 1981, for fertilizer shipments from the Nevinnomyssk Azot Production Association (Stavropol'skiy Kray), motor transport was not utilized fully since a considerable portion of the mineral fertilizer was consigned to other oblasts and in Stavropol'skiy Kray the plans call for fertilizers to be imported from enterprises in other oblasts.

Solutions are required for the problems concerned with raising the quality of packaging work and improving the storage and transporting of the KhSZR. Here we are encountering a considerable volume of manual operations and inefficient use of transport equipment.

In order to solve all of the mentioned problems (with considerable growth taking place in the production of fertilizers and KhSZR), joint and purposeful work is required on the part of the Ministry of Railways, the USSR Ministry of Agriculture, the Ministry for Mineral Fertilizer Production and also by all interested organizations.

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TILLING AND CROPPING TECHNOLOGY

ROLE OF ROSSEL'KHOZKHIMIYA IN RSFSR CROPPING PROGRAM DESCRIBED

Moscow ZASHCHITA RASTENIY in Russian No 6, Jun 82 pp 2-6

/Article by V.M. Bel'chenko, chairman of the Rossel'khozkhimiya Association and 1st Deputy Minister of Agriculture for the RSFSR: "We Are Farmers!"/

/Text/ The Rossel'khozkhimiya Association has commenced the Eleventh Five-Year Plan in an organized manner, having at its disposal a vast network of production subunits in all agricultural regions of the Russian Federation. Left behind is the complicated stage of departmental demarcation, the development of an organizational structure for the new service, its functions, statutes on its status and responsibilities and definitions of the new approaches for the existing methods of interaction between the service and the kolkhozes and sovkhozes.

But this is only the beginning. Complicated work must be carried out in connection with transforming the service for the use of chemical processes into a basic and truly agricultural branch which will affect agriculture as a whole and all of the kolkhozes and sovkhozes, with the working area of this branch being the fields and the operational indicator -- growth in soil fertility and increased cropping power.

Under modern conditions, a change is taking place in the understanding of the term "farmer." Earlier this term was employed for all who worked the land. Today a true farmer is one who not only works the land but also displays concern for reproducing its fertility. The new interpretation makes sense since only by "making the land" is it possible today to manage a farm on an intensive basis. And the chief task of Sel'khozkhimiya consists of ensuring that each of its workers becomes a farmer in the fullest sense of this word.

It is precisely this approach that is penetrating the consciousness of workers in our service and influencing their practical activities. Sel'khozkhimiya is searching for and introducing into operations mainly those chemical methods which are definitely advantageous to a kolkhoz or sovkhoz and provides it with steady improvements in production productivity. New contractual obligations are being developed which closely associate the payments for services rendered by agricultural chemists with specific increases in yield. Proposals have been introduced calling for the profits of Sel'khozkhimiya to be held to minimal amounts, without which cost accounting activity would be impossible, with all funds obtained over and above these minimal amounts being returned to the kolkhozes and sovkhozes where the work was carried out.

The changes in the approach employed in the interaction of the association with kolkhozes and sovkhozes have created a situation in which there is increased interest in obtaining a high return from the use of chemical processes and in reducing the various types of losses.

If we assign a value of 100 percent to the agrochemical work volumes carried out by Sel'khozkhimiya in 1979, then in 1980 there was an increase of 14 percent and in 1981 -- another 12 percent increase. This growth was especially noticeable at the Saratov, Mordovo, Altayskiy, Tyumen' and other associations, where the kolkhoz and sovkhoz funds for equipment and labor limits were turned over to Sel'khozkhimiya.

Sel'khozkhimiya undertook complete responsibility for the use of chemical processes in agriculture, regardless of whether or not the work was performed by mechanized detachments or by the farms themselves. And we intend to develop in an active manner both of these forms for the use of chemical processes and to an equal degree, while increasing the volumes and rates for services by Sel'khozkhimiya. The attempts made in a number of rayons to release the kolkhozes, sovkhozes and other subunits from having to display concern for the fertility of the soil, under the pretext that today this work must clearly be carried out only by the agrochemical organizations, will produce no benefits for agriculture.

Our servie has presently been structured right down to the rayon level inclusive. With regard to the principal production element -- the kolkhozes and sovkhozes -- only 220 intra-farm stations for the use of chemical processes and 2,900 permanently active fertility detachments have been created for 25,000 farms in the republic. A great amount of work remains to be carried out in connection with the organization of subunits (department, station, detachment) on each farm, which will carry out an entire complex of chemical measures aimed at increasing the fertility of the soil. Moreover, we must not overlook the fact that the master of the land will be the kolkhoz or sovkhoz agronomist, since it is he who must direct the activities of the agrochemists, land reclamation specialists and machine operators. The service for the use of chemical processes can perform successfully only when it interacts closely with the agrochemical service and operates under its direction.

The searches for effective forms of interaction are being carried out at the rayon level. The task consists of creating a single service for the use of chemical processes in each rayon, a service which from a single center will be capable of solving all of the problems concerned with improving soil fertility, coordinating the efforts of departments engaged in the carrying out of chemical work, directing and taking this work into account and ensuring intelligent and effective use of all chemical resources. Towards this end the rayon agrochemists and also specialists from the plant protection stations have been included in the rayon associations.

In 1981, Rossel'khozkhimiya fulfilled all of the principal planned indicators. Compared to 1980, the applications of organic fertilizer had increased by 16.5 percent, mineral fertilizers and phosphoritic meal -- by 7 percent and lime -- by 12 percent; the chemical treatment of feed -- an increase by a factor of 1.5. Greater quantities of peat and lime were procured and increases took place in the supply of chemical resources to agriculture. A substantial increase (37 percent) was realized in the use of capital investments. Especially high indicators were achieved in this work at the Mordovo, Volgograd, Bashkir, Tatar, Rostov, Altayskiy and a number of other associations.

The tasks for protecting plants against pests, diseases and weeds were fulfilled. The campaign against pests and diseases in the Russian Federation was carried out on an area of 29.3 million hectares and herbicides were used on 35.5 million hectares. In the process, 10.1 million hectares were treated by mechanized detachments. The plans for economic-contractual work were considerably over-fulfilled at the Omsk (by 84 percent), Tambov (by 62.5 percent, Chita (32 percent), Krasnodar (27 percent) and Rostov (24 percent) associations.

The biological method was employed on 11.2 million hectares under field conditions on sheltered ground -- on 50.9 million square meters, considerably more than the planned tasks. The collectives of plant protection stations, laboratories and forecasting and diagnostics stations, biological laboratories and factories, toxicological laboratories and kolkhoz and sovkhoz agronomists and entomologists are deserving of great credit for their skilful, timely and efficient use of chemical and biological resources. Thus the Bryansk Plant Protection Station headed by A.M. Tsygankov was on three occasions included among the winners of a republic socialist competition. High indicators are being achieved by the collectives of plant protection stations in the Severo-Osetinskaya ASSR (chief I.M. Makeyev), the Adygeyskaya AO (I.P. Kupin) and in Vologodskaya (L.P. Rozin) and Leningrad Oblasts (R.M. Churkina).

In 1981 the forecasts and signals issued by laboratory and station specialists in Krasnodarskiy and Stavropol'skiy Krays were distinguished by a high level of accuracy and validity. Work is being carried out in a number of oblasts, krays and autonomous republics aimed at introducing automatic forecasting systems into operations, systems which will make it possible to raise this work to a new level from the standpoint of quality.

The work being performed by the collectives at the Belgorod and Voronezh biological factories also warrants a high evaluation.

There are approximately 7,500 individuals presently assigned to subunits of this single chemical service, of which number more than one half possess a higher agronomic and approximately 2,000 -- a specialized education in the protection of plants. Each year 500 specialists undergo retraining by taking courses at agricultural institutes for the purpose of improving their skills. This force is capable of solving complicated and important tasks.

At the same time, the kolkhozes and sovkhozes in the Russian Federation are not being supplied with sufficient numbers of plant protection personnel. This situation must be corrected. The peculiarities involved in the protection of crops require the availability of particular specialists at each farm, individuals who are capable of employing herbicides, other pesticides and biological preparations on an extensive scale and of displaying serious concern for the thrifty, sound and at the same time safe implementation of protective measures.

1982 is a jubilee year for the Soviet Union and this imposes a special responsibility upon the collective of the agrochemical service. For it is now, during these summer days, that the fate of the future harvest is being decided and thus the chemical specialists have many opportunities at their disposal for influencing the final results of the work being performed by the farmers. The largest task of the second year of the five-year plan -- the introduction on an

extensive scale of the method of all-round use of chemical processes, which makes it possible to raise the effectiveness of the fertilizers and plant protective agents and carry out controlled work in connection with improving the fertility of the soils.

What is the essence of this work?

The kolkhoz or sovkhoz determines the field in a crop rotation plan (fallow or following early harvested predecessor crops) requiring the all-round use of chemical processes. The subunits of Sel'khozkhimiya carry out here the required soil studies, prepare a record and agrochemical charts for the field and also a forecast for the spread of diseases, pests and weeds.

The field is placed at the disposal of Sel'khozkhimiya for the period stipulated in the contract and thereafter Sel'khozkhimiya, strictly in accordance with the documentation, applies organic and mineral fertilizers to the soil; carries out the liming and phosphoriting of acid soils and the gypsuming or reclamative treatment of solonetz soils and, when necessary, carries out soil improvement work and pre-sowing plant protection work. After all this has been done, the association delivers a guarantee to the farm in which, for each year of the crop rotation plan and taking into account the achieved level of fertility, the cropping power for the crops to be grown on this field is listed. During subsequent years in the continuation of this crop rotation, Sel'khozkhimiya bears responsibility for making up for the nutrient losses on the given field, occasioned by unforeseen weather conditions or other factors and also for protecting the plants. Following completion of the crop rotation cycle, the association's agrochemists employ all-round chemical processes on the field and raise its fertility to a new and higher level.

A contract concluded between a kolkhoz (sovkhoz) and Sel'khozkhimiya also calls for mandatory agrotechnical work to be carried out by the farm in order to obtain the planned yield.

The new method makes it possible to establish the payment for the services of the chemical specialists to be directly dependent upon the guaranteed cropping power being obtained. In 1981, all-round use of chemical processes was employed on 1.1 million hectares of fields in the Russian Federation and in 1982 it is being used on 1.4 million hectares. In particular, this work is being carried out successfully in Lipetskaya, Moscow, Ul'yanovskaya, Gor'kovskaya and Rostovskaya Oblasts and in Stavropol'skiy Kray. The farms themselves are employing the all-round use of chemical processes on an area of 0.6 million hectares.

An important condition for achieving success with this new method is that of ensuring that the nutrients supplied to a field in behalf of a crop are not consumed by weeds and pests. Rather, the fields must be protected by employing the most effective, thrifty and safe agrotechnical, biological and chemical resources.

The task of reducing losses in chemical resources and ensuring their rational expenditure is of exceptional importance. Rossel'khozkhimiya is energetically introducing into operations such highly productive methods as local applications of fertilizers, foliar top dressings for crops, low-volume spraying and border treatments with pesticides and so forth. The subunits of Sel'khozkhimiya must gradually develop an entire complex of protective operations, commencing with the

preparation of seed for sowing and ending with protection of the finished products. In this manner the associations will remain directly interested not only in the measures carried out but also in obtaining a specific increase in the cropping power of the agricultural crops.

A great future lies ahead for the all-round protection of plants. During this present stage, we must complete the process of developing this method and organizing its use on an extensive scale. By the end of the Eleventh Five-Year Plan, the increase in the plant protection work volumes must be no less than 40 percent. Towards this end, an increase must take place in the deliveries of pesticides and organizational work at the kolkhozes and sovkhozes must be improved.

A great amount of work must be carried out in connection with improving the mechanization of protective measures. At the present time, only the principal technological processes have been mechanized -- spraying, dusting and chemical disinfection. At the same time, the preparation of solutions, emulsions and suspensions is still quite often being carried out manually. Industry is producing very few units for the preparation of working liquids. Agriculture is not being adequately supplied with OVT-1V blower sprayers; in 1981 the requests for them by RSFSR kolkhozes and sovkhozes were satisfied by only 32 percent.

In connection with the conversion over to raising agricultural crops using the industrial technology and increasing the use of herbicides on grain crops, a requirement exists for developing new high speed (up to 15-20 kilometers per hour) and wide-cut (up to 100 meters or more) units, including those of the boom type, equipped with standard working organs and capable of carrying out low-volume and ultra-low-volume spraying operations.

The associations of Sel'khozkhimiya have also undertaken to provide services for aviation-chemical operations, particularly in connection with the use of pesticides. This problem is being solved in a fine manner in Moscow Oblast, where the association is providing support for plant protection aviation operations being carried out on an area of approximately 200,000 hectares. This experience must be disseminated, with ground services being provided for the aircraft and helicopters, in the production programs and in the form of the principal indicator. Long-term contracts (for the five-year plan) for the carrying out of aviation-chemical operations must be worked out between the subunits of agricultural aviation and Sel'khozkhimiya.

Measures are being undertaken aimed at expanding the network of permanent airfields and also for the timely preparation of temporary take-off and landing sites. The scientific research institutes must accelerate the development of new forms of pesticides containing such additives as weighting compounds, insect sticking means and anti-evaporators which reduce the removal of the atomized wave and also the validation of new technologies for carrying out aviation-chemical operations, by means of which the joint use of pesticides with liquid complex mineral fertilizers is possible.

Under conditions involving a shortage of airfields, more extensive use must be made of helicopters. They do not require take-off and landing strips and the air flow from the propellers of a helicopter prevents the chemicals from drifting away. Certainly, it is more expensive to employ helicopters and this factor must be dealt

with. However, it must also be borne in mind that a take-off and landing strip is not built in just one day and in the meantime the crops and plantings must be protected today. In addition, importance is attached to the high productivity of winged vehicles in view of the fact that their use compensates for the shortage in labor resources in agriculture in many regions of the country.

A serious problem is that of disinfecting the seed and developing new technologies for treating them using protective-stimulating preparations. Certainly, the farms themselves must provide the basis for solving this problem. Indeed, it is clear that if the seed fund consists of sub-standard stock, then there is no need for even considering disinfection work. Quite often the sowing work is carried out using freshly harvested seed, which at best is disinfected immediately prior to sowing and more often than not it is not disinfected whatsoever. In many rayons and on many farms, concern is not being displayed for setting aside special seed storehouses and disinfection sites for the timely treatment of the seed for spring grain crops. The agronomic services of kolkhozes and sovkhozes has been assigned the task of restoring order in this work.

But this is not meant to imply that Sel'khozkhimiya is removed entirely from this work. As the production base for the chemical service becomes stronger, its participation in work concerned with the disinfection of seed will increase. Towards this end, the All-Russian Scientific Research Institute of Plant Protection is developing organizational-technological programs for centralized units. The associations of Sel'khozkhimiya must achieve in a more decisive manner deliveries of disinfecting machines to agriculture, they must develop new and more improved and stronger disinfectants and they must create effective liquid disinfectant forms.

During the past few years, the waterproofing of corn seed has been introduced into operations in a number of oblasts throughout the republic. However, owing to a lack of specialized equipment, this work is being carried out at a low technical level. It is believed that the waterproofing of seed, similar to the centralized disinfecting of seed for a number of other crops, should ideally be carried out at specialized enterprises of the RSFSR Ministry of Procurements. At such enterprises it would be possible to treat large batches of seed using also laser beams, ultrasonics and other activating agents.

Extreme importance is being attached to waging a timely and effective campaign against weeds, especially under conditions involving production specialization and concentration in the cultivation of crops using an industrial technology. In many instances, a high culture of farming alone will not suffice. Sel'khozkhimiya is conducting a search for effective chemical agents. It is known that use of the same herbicides is accompanied by an increase in the stable types of weeds. A successful campaign can be waged against them only through the use of a well thought out combination of agrotechnical and chemical measures and also by employing mixtures of herbicides. Such mixtures are not only more effective than individual preparations, but in addition they possess as a rule a weaker residual effect.

In this regard, each farm should have at its disposal information on the species structure of the weeds and on the level of contamination of the crops. In 1981, more than one half of all of the republic's fields were inspected for contamination and at the present time this work is nearing completion. Rossel'khozkhimiya is persistently striving to obtain from the scientific research institutes the means

and methods for forecasting the contamination of crops. A forecast with regard to weeds is especially important when use is made of soil action herbicides, in which case, even prior to the appearance of the seedlings, a decision must be made regarding the feasibility of using a particular preparation.

The biological method for protecting plants has been employed extensively throughout the republic during the past 10 years. The extent of use of the biological method in the field increased from 0.5 million hectares in 1970 to 11.2 million hectares in 1981 and on sheltered ground -- from 0.5 million square meters to 50.9 million square meters respectively. Almost one fifth of all protective treatments of field crops against pests was carried out using the biological method. In the campaign against certain pests of sugar beets, vegetable, fruit and some other crops, trichograms were used on 2.3 million hectares. This useful insect is being reproduced in the republic at 19 biological factories built during the past decade, at 23 biological laboratories of plant protection stations and at 28 inter-farm laboratories. Microbiological preparations of industrial production, mainly BIP, dendrobacillin, bitoxybacillin and entobacterin were used on 733,000 hectares in 1981. In particular, the microbiological method is being developed successfully at plant protection stations in Volgogradskaya and Rostovskaya Oblasts and in the Checheno-Ingushskaya ASSR.

A campaign is being waged against mouse-like rodents using bactorodentside, which is being produced in 26 oblasts, krays and autonomous republics and which was employed on an area of 3.8 million hectares in 1982. As a result, the use of zinc phosphate rodent poison, which is harmful to both humans and animals, has been reduced to a minimum.

A basically new trend is entering into more widespread use -- the preservation of useful entomophages. Studies now being carried out take into account not only the harmful insects but also their parasites and predators. In those instances where the number of entomophages exceeds the threshold ratio for the number of harmful insects, the chemical treatments can be eliminated. This makes it possible to avoid excessive expenditures and it creates favorable conditions for the further reproduction of useful entomophages and their settling in other tracts. In addition, in precludes the possibility of environmental contamination by pesticides. In 1980, owing to a high number of entomophages, chemical treatment work was abolished on 3.8 million hectares and in 1981 -- on 3.9 million hectares.

By the end of the Eleventh Five-Year Plan, the biological campaign against pests will be carried out under field conditions on more than 14 million hectares.

Many aspects of our work require more thorough scientific development. For example, let us take such simple work as the use of organic fertilizer. The changes which have taken place in livestock production over the past 15-20 years have produced a situation wherein a large portion of the organic fertilizer is now being produced on farms which lack the conditions required for preparing humus or for destroying the embryos of weeds and pests.

Peat is being used for fertilizer in the absence of proper preparation. Meanwhile, it is known that when an average of 100 tons of unprepared organic fertilizer is applied per hectare, from 4.5 to 15.5 million weeds germinate, a number which is capable of withdrawing more nutrients from the soil than were added with the fertilizer. Thus importance is attached to displaying concern for the cleanliness

of a field not only after the weeds have appeared thereon but also considerably before this has occurred. Those individuals are wrong who believe that the procurement and application of organic fertilizers can be carried out in the absence of control in the form of plant protectors.

A similar problem develops when saproprel is used for fertilizer: it contains large quantities of weed seed.

It is also known that the use of certain types of fertilizers and lime materials stimulate the development of a number of diseases, pests and weeds. And this must also be taken into account by the plant protection service.

Now an element of a single agrochemical association, this service must coordinate thoroughly all of its actions with other subunits of Sel'khozkhimiya and develop common and joint programs for improving the fertility of soils and raising and preserving the yields obtained. We cannot tolerate a situation, such as is happening in some areas, wherein the remnants of former departmental isolation of plant protection stations from other agrochemical elements are being continued.

A single agrochemical service differs from a quality standpoint from subunits which previously employed chemical processes in different departments. Today this service forms the politics for the use of chemical processes, it plans the agrochemical operations and it implements them for all practical purposes. And this means that Sel'khozkhimiya, in addition to other conditions required for further development, also requires a good production base. Approximately 2.5 billion rubles, or almost twice as much as was obtained during the past five-year plan, have been allocated for strengthening this base in the republic during the Eleventh Five-Year Plan. Work is being carried out and in some instances it has even been completed in connection with the development of common programs for the placement and development of storehouse facilities, landing and take-off strips, bases for mechanized detachments, rayon associations and departments and sites for the production of organic composts and other installations. Standard planning solutions are being prepared for these installations, as called for in the common plans.

Work is being carried out in connection with the creation in each rayon association of detachments and brigades for construction using the economic method and at each planning-research station -- departments for the planning and coordinating of construction projects. Large-scale projects will be erected using the contractual method. Construction operations based upon use of the economic method are being carried out in a very successful manner in Pskovskaya, Kaluzhskaya, Orlovskaya, Voronezhskaya, Saratovskaya and some other oblasts.

One weak area is the unsatisfactory nature of the technical servicing and repair work being carried out in the machine-tractor pool.

As is known, this work has been entrusted to subunits of Goskomsel'khoztekhnika and yet this department is not carrying out the work as desired in all areas. An alamming situation has developed in Kostromskaya, Smolenskaya and Kuybyshevskaya Oblasts and in the Bashkirskaya and Udmurtskaya ASSR's. Tractors, motor vehicles and specialized equipment which operate in aggressive mediums and under exceptionally unfavorable conditions, break down from time to time. And this occurs despite the fact that joint decisions were handed down by RSFSR Goskomsel'khoztekhnika and Rossel'khozkhimiya with regard to improving the repair of machines.

Moreover, the situation is especially poor with regard to the specialized equipment employed for protecting plants. As a rule, it must be restored under the primitive conditions which prevail at the Sel'khozkhimiya and farm workshops.

This problem can be solved by having RSFSR Goskomsel'khoztekhnika create specialized enterprises for the repair of machines employed for the use of chemical processes. For their part, the production plants must expand considerably their production of spare parts.

It has already been stated that Sel'khozkhimiya does not require unjustifiably high profits which can cause harm to the kolkhoz and sovkhoz economies. At the same time, our association is completely a cost accounting organization, to which the financial and bank organs relate in like manner as they did to Goskomsel'khoz-tekhnika, without imposing upon it however the financial-credit conditions, rules for the formation of funds and other financial conditions which apply to agricultural enterprises. And indeed Sel'khozkhimiya is purely an agricultural organ. In carrying out its work, it is guided by an immutable rule: whatever is good for a kolkhoz is good for Sel'khozkhimiya and what is unprofitable for a farm is unacceptable to Sel'khozkhimiya. Thus one of the most important tasks of this present stage in the development of a single chemical service is that of ensuring the most rapid application, with regard to our association, of those rules and conditions which will produce profits for the kolkhozes and sovkhozes.

In competing to prepare in a worthy manner for the 60th anniversary of the Union of Soviet Socialist Republics, the Sel'khozkhimiya workers are presently devoting all of their efforts towards successfully carrying out the plans and obligations for the jubilee year.

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